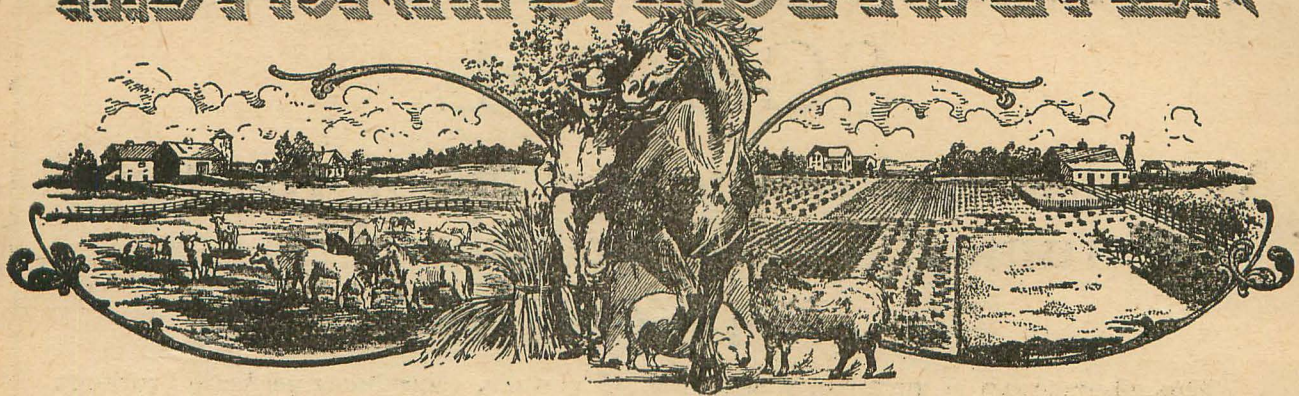


THE NORTH DAKOTA FARMER

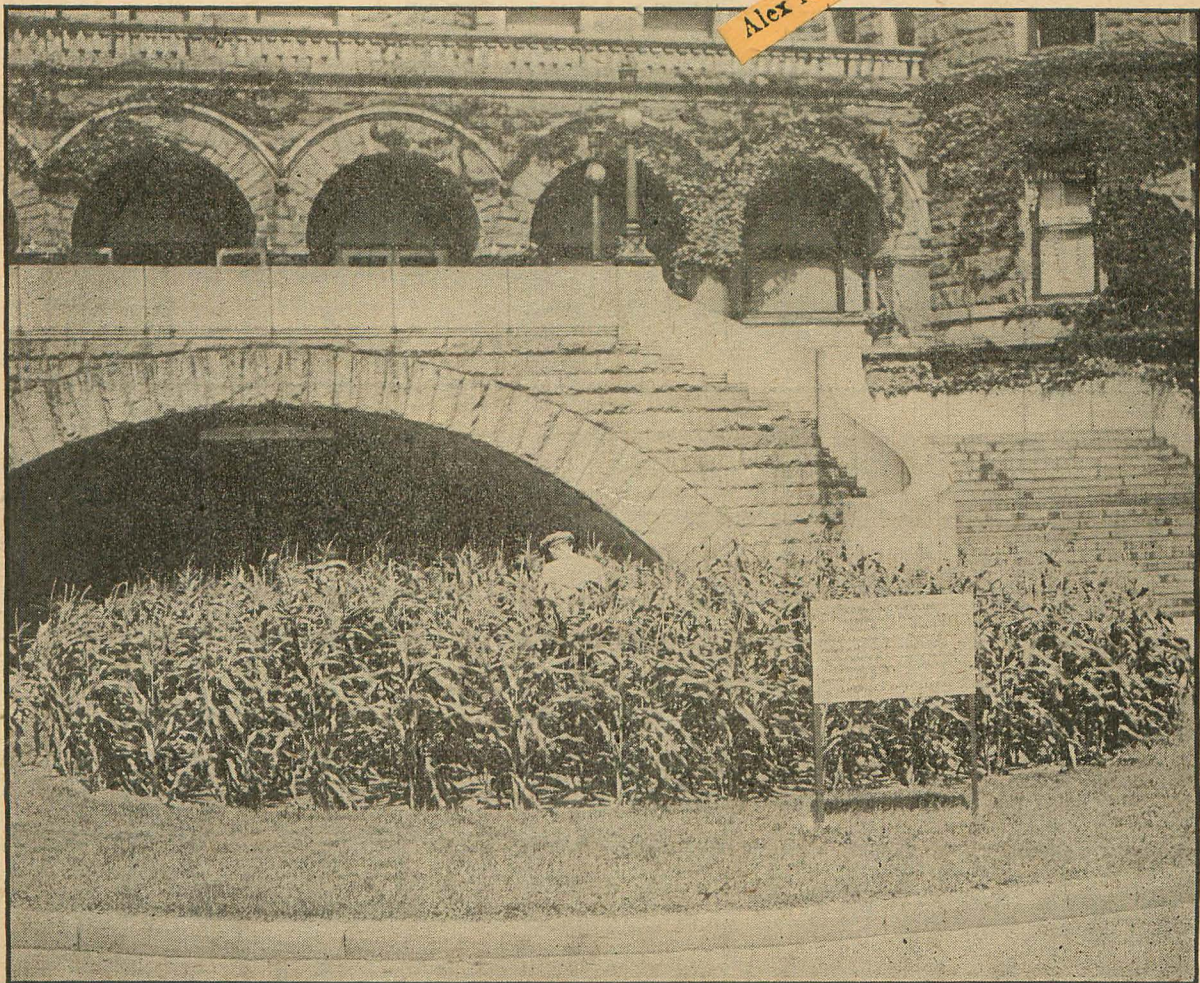


"With Malice Toward None"

Lisbon, N. D.

September 15, 1917

Vol. 19, No. 3



THE WORLD'S BEST KNOWN CORN PATCH

Instead of planting tulips in the large circular bed in its grounds this year, the American Museum of Natural History sowed five varieties of the Mandan maize. The corn was planted on June 15th, 1917, and grew rapidly. It was probably changed in characteristics in the climate of the East. Thru the researches of the Department of Anthropology of the American Museum, the secret of the cultivation of this corn was learned from the Indians and imparted to the public. This maize is prolific in cold climates and is now being cultivated in vast mountainous regions where no corn was ever raised before.

978.4
N814
Graham

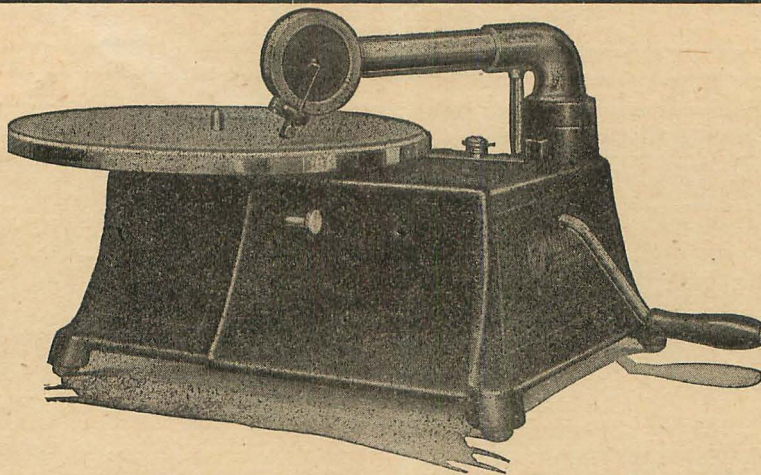
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This phonograph is portable, weighs but 12 pounds, reproduces perfectly (without the hollow, metallic sounds of the brass projectors) instrumental and vocal music of the highest quality. It is no toy. It plays 6-inch, 8-inch, 10-inch or 12-inch standard records. It sells for \$12.

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The past summer I played this phonograph beside one costing several times as much and I was surprised to find that the tones were equally pure and distinct. So pleased was I that I determined to offer the Vanophone as a premium for subscribers to my two publications: The North Dakota Farmer and Rotary, and the Pathfinder, all of which should be in every North Dakota school and home.

Here is one of many testimonials:

In my opinion, the difference between your Vanophone and the \$300 phonograph lies mainly in the fact that the latter machine has a very expensive mahogany cabinet, while your instrument contains nothing but the heart or mechanism which does the reproducing—it is free from all extravagant frills. There's a musical surprise in store for every person who purchases a Vanophone.—Geo. W. Kinzel, 1580 E. 23 st, Cleveland, O.

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THE NORTH DAKOTA FARMER

Vol. 19, No. 3

LISBON, N. D., SEPTEMBER 15, 1917

75 Cents a Year

Tillage and Rotation Control Wild-oat Pest

Specialist Describes Methods, by Sections, for Eradicating Most Serious Weed in Spring Wheat.

Wild oats, the worst weed pest in the hard spring-wheat area, can be controlled by rotating crops and by efficient tillage methods. As the eradication methods differ according to the soil and climatic conditions, a specialist of the United States Department of Agriculture, in a new publication, describing the control of this pest, Farmers' Bulletin 833, divides the hard spring-wheat area of North Dakota, South Dakota, and Minnesota into three general divisions and suggests methods for each.

These divisions are: the Red River Valley division, which includes western Minnesota and eastern North Dakota; the western division, which consists primarily of western North Dakota; and the southern division, composed largely of eastern South Dakota and southwestern Minnesota.

The principle of eradication in all the methods suggested by the Government specialist is to cause the seeds of the wild oat to germinate and then to destroy the seedlings before they mature. The methods advocated for each section described in detail in the bulletin, may be stated here only briefly. For convenience the methods are numbered and in some sections a combination of several methods sometimes may be desirable, the specialist says.

Method No. 1. Summer fallow or pasture. This method consists in allowing infested land to lie fallow during the summer and by plowing and pasturing to destroy the successive growths of wild oats as they germinate from seeds brought near the surface.

Method No. 2. Winter rye. The land should be plowed in the fall and seeded to winter rye using an early-maturing variety. The rye will mature and can be harvested the following spring before the wild-oat seeds are sufficiently mature to germinate. The field then should be plowed or the stubble pastured during the rest of the season.

Method No. 3. Meadow. Throughout the Red River Valley where heavy soils predominate wild-oat seed will

not live in the ground more than two years. The common practice, therefore, for destroying the weed there, is to seed the land to some crop for hay such as alfalfa, or timothy and clover, and after two or three years the wild oats will be entirely eradicated.

Method No. 4. Intertilled crops. Wherever rotations which include intertilled crops can be practiced it is a comparatively simple matter to keep this weed under control. The intertillage hastens the germination of the seeds which are left in the soil, and additional tillage kills the young seedlings.

Method No. 5. Early barley. Plow in the autumn to a depth of three inches and prepare a good seed bed by harrowing. Harrow again in the early spring in order to promote the germination of the wild oats. After they have germinated they should be plowed under five or six inches deep and a good seed bed prepared. Plant immediately an early-maturing variety of barley. This crop not only matures early but produces a very dense growth which has a tendency to smother weeds. After the barley is harvested, the land should be plowed and pastured in order to eradicate any surviving oat plants.

Method No. 6. Barley and rye. Plow the land shallow (three inches) in the fall. Early the following spring disk or harrow and seed to barley or oats. Harvest this crop for hay while the wild oat plants are still green. Then plow the land five or six inches deep and in August seed to winter rye. The following summer, after the rye is harvested, plow the land shallow. Late the next spring after the volunteer rye and wild oats have come up, plow again five or six inches deep and seed to barley. The barley may be harvested for grain before the wild-oat seeds are sufficiently matured to germinate.

In the Red River Valley division, where the soil is a heavy clay and moisture is plentiful, it is probable that the most desirable method to use is No. 3. In the southern division

where the growing season and climatic conditions are more favorable for the production of corn, it is likely that method No. 4 will be found most practicable. In this area the seasons are not so severe as in the areas farther north and winter rye is a more profitable crop. Method No. 2 also may be found effective. In the western division where the soil is more sandy and the rainfall lighter, methods 1 and 5 will be most effective, though methods Nos. 2 and 3 may prove to be valuable.

The bulletin, now ready for distribution, also describes the damage done by the wild oat, tells how to identify the plant, and gives suggestions as to how to avoid infestation of fields.

THE FLAG ON THE FARM

We've raised a flagpole on the farm
And flung Old Glory to the sky,
And it's another touch of charm
That seems to cheer the passer-by,
But more than that, no matter where
We're laboring in wood and field,
We turn and see it in the air,
Our promise of a greater yield.
It whispers to us all day long
From dawn to dusk: "Be true, be strong;
Who falters now with plow or hoe
Gives comfort to his country's foe."

It seems to me I've never tried
To do so much about the place,
Nor been so slow to come inside,
But since I've got the flag to face,
Each night when I come home to rest,
I feel that I must look up there
And say: "Old flag, I've done my best,
Today I've tried to do my share."
And sometimes, just to catch the breeze
I stop my work, and o'er the trees
Old Glory fairly shouts my way:
"You're shirking far too much today."

The help have caught the spirit, too,
The hired man takes off his cap
Before the old red, white and blue,
Then to the horses says: "Giddap!"
And starting bravely to the field,
He tells the milkmaid by the door:
"We're going to make these acres yield
More than they've ever done before."
She smiles to hear his gallant brag,
Then drops a curtsy to the flag,
And in his eyes there seems to shine
A patriotism that is fine.

We've raised a flagpole on our farm
And flung Old Glory to the sky,
We're far removed from war's alarm,
But courage here is running high.
We're doing things we never dreamed
We'd ever find the time to do;
Deeds that impossible once seemed,
Each morning now we hurry thru.
The flag now waves above our toil
And sheds its glory on the soil,
And the boy and man look up to it
As if to say: "I'll do my bit!"

—Philadelphia American.

SAVE BARNYARD MANURE

A Big Leak That Can Be Stopped

Assistant Secretary Vrooman of the United States Department of Agriculture recently startled the country with the statement that "Our billion-dollar manure waste is the world's greatest economic leak."

"This is not a mere wild guess," he continues, "but a very shrewd and conservative estimate based upon reliable statistics. It has been found that each horse or mule produces annually \$27 worth of manure (based upon commercial fertilizer values); each head of cattle \$20 worth; each hog \$8 worth. Recent investigations indicate that at least one-half of this great wealth of fertilizing material is lost."

Here, then, is a big problem in war thrift for every farmer in this country. Some of this loss is unavoidable but the greater part can be saved.

On the dairy farm, the best and cheapest way is to draw the manure directly to the field and spread it as fast as it is made. If plenty of good absorbent bedding is used, the most valuable or liquid portion of the manure can be saved. Rain, after the manure is spread upon the land, only helps to carry the fertilizing materials where they can do the most good—provided, of course, that the land is reasonably level.

There are few farms, however, where all the manure can be handled in this way. Very often, heaps of manure accumulate beside the barns from which the most valuable constituents leach away. Of such manure, Prof. Van Slyke of the New York Agricultural Experiment Station said: "Taking into consideration both the amount and the availability of the plant food leached from stable manure, it is not an exaggeration to say that two-thirds of the plant-food value is leached away from much of the stable manure used on American farms."

The best method of storage is in a manure pit. A pit 3 feet deep, 12 feet long and 6 feet wide will enable

the average farmer to properly preserve the extra barnyard manure until he can find time to haul it to the field. Such a pit may readily be constructed with farm labor of cement, or of hollow tile with a thin coat of cement to prevent seepage. The cost will be trifling in proportion to the saving effected.

The manure pit should be so located that the liquid portion of the manure can be drained from the stable to the pit. Since "about one-half of the value of the nitrogen and two-thirds that of the potassium are in the urine," a big saving can be effected by the use of this manure pit.

Barnyard manure, considered as plant food is decidedly an unbalanced ration. It is high in nitrogen (ammonia) and low in phosphorus. If used freely, it is apt to force a rank growth of foliage without a corresponding increase in the grain yield. So it is a good plan to sprinkle acid phosphate over the manure pit at the rate of 40 to 50 pounds per ton of manure. This will help keep the flies from breeding in the pit. The acid phosphate will absorb some of the liquid manure. The free ammonia, instead of escaping, will be changed into ammonium phosphate and ammonium sulfate—both valuable fertilizers. Manure so treated is not apt to heat and will make a much better-balanced fertilizer than will clear manure.

Another good plan is to build an open feeding shed with a concrete floor for young stock not kept in the stanchions. If this shed is kept bedded, the tramping of the stock will prevent fire-fanging and the manure can be preserved with the least possible loss.

Farm manure adds organic matter which is needed by most of our upland soils. It also favorably affects the bacterial life of the soil. The benefits from even a light dressing of manure are noticeable for several years. Indeed, a given amount of manure will accomplish much more when spread thinly than when concentrated on a smaller area.

If there should not be enough manure to cover the entire acreage to be sown to fall grains, use 200 to 400 pounds of complete fertilizer to the acre. Or, if that can not be had, use a fertilizer containing 2 to 3 per cent of ammonia and a high percentage of phosphoric acid. Such fertilizer may most readily be sown broadcast at seeding time with a wheat drill carrying a fertilizer attachment. Spring dressing of wheat with 200 to 300 pounds of suitable fertilizer may readi-

ly increase the yield from 5 to 13 bushels per acre.

The Food Control Bill carries a positive guarantee of at least \$2 a bushel for all wheat harvested in 1918. The prospects are that high prices will also prevail for most farm crops. Every bit of manure saved this fall and winter will surely tell in next season's harvest. Why not begin now?

GOVERNMENT CROP REPORT

Washington, D. C., Sept. 7, 1917.—A summary of the September crop report for the State of North Dakota and for the United States, as compiled by the Bureau of Crop Estimates (and transmitted thru the Weather Bureau), U. S. Department of Agriculture, is as follows:

Corn

State: Sept. 1 forecast 8,200,000 bushels; production last year (Dec. estimate), 13,515,000 bushels.

United States: Sept. 1 forecast, 3,250,000,000 bushels; production last year (Dec. estimate), 2,583,241,000 bushels.

All Wheat

State: Sept. 1 forecast, 61,000,000 bushels; production last year (Dec. estimate), 39,325,000 bushels.

United States: Sept. 1 forecast, 668,000,000 bushels; production last year (Dec. estimate), 639,886,000 bushels.

Oats

State: Sept. 1 forecast, 44,200,000 bushels; production last year (Dec. estimate), 53,750,000 bushels.

United States: Sept. 1 forecast, 1,530,000,000 bushels; production last year (Dec. estimate), 1,251,992,000 bushels.

Barley

State: Sept. 1 forecast, 24,300,000 bushels; production last year (Dec. estimate), 26,738,000 bushels.

United States: Sept. 1 forecast, 204,000,000 bushels; production last year (Dec. estimate), 180,927,000 bushels.

Rye

State: Preliminary estimate, 9,310,000 bushels; production last year (Dec. estimate), 4,655,000 bushels.

United States: Preliminary estimate, 56,044,000 bushels; production last year (Dec. estimate), 47,383,000 bushels.

Flaxseed

State: Sept. 1 forecast, 4,560,000 bushels; production last year (Dec. estimate), 8,137,000 bushels.

United States: Sept. 1 forecast, 11,000,000 bushels; production last year (Dec. estimate), 15,459,000 bushels.

Potatoes

State: Sept. 1 forecast, 5,050,000 bushels; production last year (Dec. estimate), 6,975,000 bushels.

United States: Sept. 1 forecast, 462,000,000 bushels; production last year (Dec. estimate), 285,437,000 bushels.

All Hay

State: Preliminary estimate, 1,880,000 tons; production last year (Dec. estimate), 3,554,000 tons.

United States: Preliminary estimate, 92,000,000 tons; production last year (Dec. estimate), 109,786,000 tons.

Prices

The first price given below is the

average on Sept. 1 this year, and the second, the average on Sept. 1 last year.

State: Wheat, 190 and 128 cents per bushel. Corn, 150 and 72. Oats, 50 and 36. Potatoes, 152 and 90. Hay, \$9.60 and \$6.40 per ton. Eggs, 29 and 19 cents per dozen.

United States: Wheat, 209.7 and 131.2 cents per bushel. Corn, 175.5 and 83.6 cents. Oats, 61.7 and 43.1 cents. Potatoes, 139.1 and 109.3 cents. Hay, \$13.68 and \$10.42 per ton. Cotton, 23.4 and 14.6 cents per pound. Eggs, 33.2 and 23.3 cents per dozen.

Our Country's Service

By Chore Boy

SAVE SEED CORN

All the improvement that has been made in the corn crop is carried over in the seed. This brings out the importance of saving seed corn. Corn is late this year so that many fields may not become mature enough for seed and very little seed has been carried over. This means that those who are fortunate enough to have corn become mature enough for seed should save an extra lot of it so that they can sell some. The more they gather and cure the more acres can be planted with North Dakota grown seed. It should also bring a good price. In case the corn does not fully mature, the question comes up as to how mature it must be to make good seed. In trials made at the North Dakota Experiment Station it was found that corn in the glazed stage made about as good seed as that fully ripe. That saved for seed when in the dough stage had pretty good germination but not as good as when fully matured, it could, however, be used for field planting by putting more kernels in each hill. The corn saved for seed in the milk stage had a very low germination. Still it was enough so that if a valuable strain of corn only reached the milk stage it could be saved by selecting the best ears for seed. The more immature the corn is the harder it is to cure. The immature corn contains a great deal of moisture and it must be removed fairly fast to prevent molding or souring.

The best way to cure corn is to hang it up in a room where the air can circulate freely. Weaving the ears into strings and hanging from ceiling is the most satisfactory way. Corn trees are very good and the poorest place is on the floor.

In considering saving seed corn it is well to remember that in many ways corn is one of the most important crops in North Dakota farming. It not only produces a lot of fodder and good grain but it also leaves the land in shape for producing a crop of grain the next year. The corn is usually fed on the farm resulting in converting it into manure which is important in increasing production. Even if the corn crop does not make a profit in itself the effect that it has in preparing the land for a crop of grain brings a profit. At the North Dakota Experiment Station it was found in a fifteen year trial that more wheat was grown in the three years following a crop of corn than in four years of continuous grain and when the land was manured for the corn the following three wheat crops yielded nearly as much as five years of continuous wheat. On that basis one-fourth of the regular wheat area could be in corn without reducing the wheat yield and whatever crop the corn made would be that much extra, while if the land was manured for the corn and one-fourth of the land kept in corn a fourth more wheat would be

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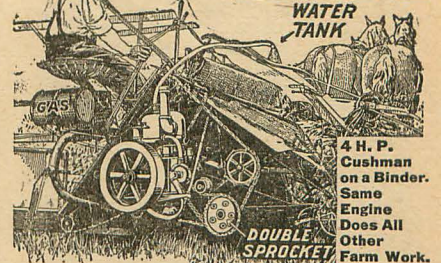
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It saves a team, because engine operates sickle and all machinery of binder, leaving horses nothing to do but pull binder out of gear; also takes away side draft. Therefore, two horses easily handle 8-foot binder in heavy grain.

It saves the grain, because it runs at uniform, steady speed, putting grain on platform evenly, allowing platform and elevator canvas to deliver it to packers straight, and thus it is tied without loss, saving a large per cent of the natural waste of binder.

It saves the crop in a wet season, because slipping of bull wheel or slowing up of team does not stop the sickle, and it never clogs. You can cut wet grain same as dry.

It saves time because you can move right along all the time in heavy grain without killing the horses, and with no choking of sickle, elevators or packers.

It saves the binder, because it operates at same regular speed all the time—no jerking of machinery by quick stopping and starting of team or when bull wheel drops into a rut. That's what tears a binder to pieces. With a Cushman Engine your binder will last twice as long. Write for book with complete description.

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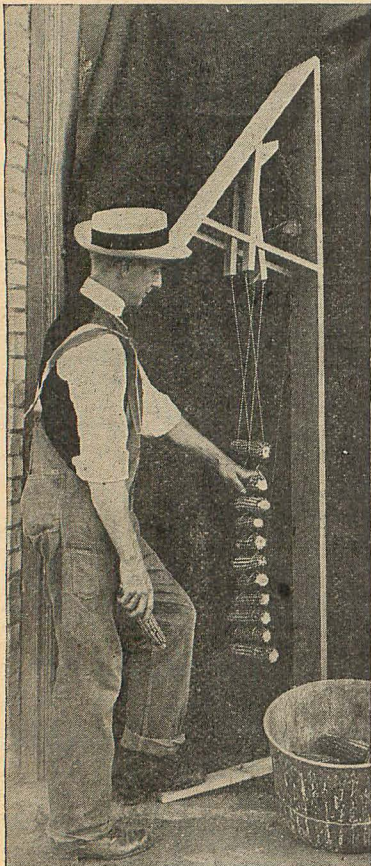
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raised than if the whole area was in continuous wheat and corn would be extra.

It was found on the North Dakota State Demonstration Farms that the wheat following corn, produced eight bushels more per acre than wheat following wheat.



A Home Made Shuttle Device for Stringing Up Seed Corn

Corn is the crop that can be introduced into grain farming to start the rotation and so break up the continuous grain growing. This brings in a new condition that the annual weeds can not meet, this makes the corn a cleaning crop which may largely account for the increased yield in the following crops of grain.

The corn land is also in the best shape for securing a stand of grasses, clover or alfalfa. That is, the corn prepares the land for bringing grasses or alfalfa into the rotation and these

make it still more difficult for the weeds, and also help prepare the land for grain crops and make food for stock. Corn is a mighty important crop and especially at this time when an increase in production is so vital. This year the wheat that was on corn land yielded a good deal more than grain following grain crops; i. e., last year's corn crop helped make this year's wheat crop.

In growing corn the best crop of corn is wanted and that comes largely from planting the right kind of seed. Now is the time to insure next year's corn crop by selecting the very best corn. It should preferably be selected in the field from the standing stalks, so that the most desirable corn may be selected for seed. Corn is one of the most effective crops to push in "Our Country's Service."

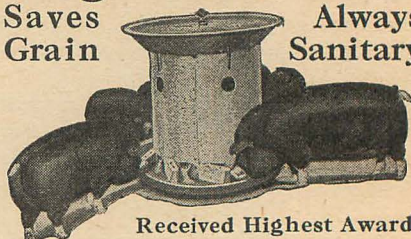
THE TIME TO PLOW SOD LAND

W. R. Porter

The question of breaking up psature or sod land is often a puzzling one. In the eastern part of North Dakota land should rarely be kept in hay or sod longer than three years unless it is rough, low or broken land. Sod land should be broken up in July or August and back set in the latter part of October to good advantage. It will be very fine land for planting to corn or potatoes the following year and it will probably be found that this is one of the best places to put the cultivated crops as any weeds that have escaped during the time the land was seeded down should be destroyed by cultivation. It is on sod land, particularly if such land has been manured, that extra large yields of corn and potatoes may be secured. The land will then be in excellent condition to produce maximum yields of small grain such as wheat, oats or barley.

Spring breaking, is also very common and desirable over the greater part of North Dakota. It should not be broken, however, until a good growth starts in the grass roots. If it is broken 5 to 6 inches deep and is turned over flat and rolled it makes an ideal seed bed for flax. The acreage of flax has been constantly decreasing

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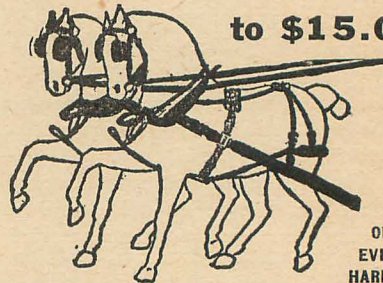
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in North Dakota while the demand for flax is very great. Under such circumstances a flax crop on spring breaking should yield very good returns. Flax should be followed with either a cultivated crop such as corn or a small grain crop as wheat, oats or barley.

The sod land should not be broken in the fall as the grass roots at that time are cured for the winter and such sods rot very slowly. This is well illustrated by the sod house. Such a house built in the spring when the grass roots are full of life crumbles down in two or three years while one built in the fall will stand up well for a period of eight or ten years.

SAVE THE STRAW

Straw and especially oat straw has considerable feeding value. A ton of oat straw has, at least, one-half the food value, then wheat straw and rye straw last. In many sections of North Dakota farmers will need to buy straw to use as feed for livestock. Straw should be saved in the sections where it is abundant so that it can be shipped to those who need it. There will likely be a market for it at fair prices. To burn it would be almost a crime.

DEMAND A BONUS

Baker, Montana,

The N. D. Farmer, Aug 17, 1917.
Lisbon, N. D.

Gentlemen:

I am sure we all feel that the federal farm loan is proving a big help for the farmer and that the North Dakota Farmer is lending its influence to help boost for it.

The biggest difficulty that we are running up against in Montana, and I suspect it is about the same elsewhere, is the fact that the loan companies are doing everything within their power to try to prevent the farmers taking advantage of the loan. They are asking a bonus on loans not yet due amounting to almost as much as the future interest. In one instance a St. Paul company which is doing a big business in this territory is asking \$1418 on a \$1200 loan due in two years, and even then does not agree to release it at that, but says it will take up the matter of trying to secure a release after that amount has been deposited with them in the form of a draft. I cannot help feeling that such an act on the part of these loan companies is not far short of treason, considering the fact that our country is at war, that the food shortage is our

most serious problem and that after this year's short crop many of the farmers are needing the federal farm loan to help them finance next year's crop.

This is a big opportunity to help at the same time in our country's campaign for maximum production.

Sincerely yours,

M. A. THORFINNSEN,
County Agent.

SWEET CLOVER

By P. G. Holden

Director I. H. C. Agri. Dept.

For many years we have observed sweet clover, melilotus, or bee clover, as it is often called, growing voluntarily under adverse conditions, by the roadside, in fence corners, along the ditches in irrigated sections, and on unoccupied land in nearly every state.

It has been commonly regarded as a weed and a great nuisance, but, in spite of the prejudice against it and

misunderstanding regarding its agricultural value many experiments conducted within comparatively recent years to ascertain its adaptability, feeding value and effect upon the soil have pretty definitely determined its importance as a farm crop.

Will Grow Under Many Conditions

Its adaptability to soil and climatic conditions are particularly a strong feature in its favor. It will endure great extremes of temperature and grow on soils too poor for alfalfa and under conditions where other grasses failed to produce a crop before it.

Advantages of Sweet Clover

Before condemning sweet clover consider that: It is not a weed; like alfalfa, it is rich in protein; will not bloat cattle or sheep; equal to alfalfa for pasture; is a great milk producer; contains more protein than red clover; is a great soil enriching crop; its roots decay rapidly, adding much nitrogen and humus to the soil; grows and will produce a crop in all parts of the United States; seeds freely in both humid and dry sections; will prevent erosion and grow under conditions where clover and alfalfa fail.

SEED WINTER RYE

We have a good supply of 1917 Amber Winter Rye which is exceptionally good quality and shows a high germination and purity.

WRITE FOR PRICE AND FREE SAMPLE

Fargo Seed House, Fargo, N. Dak.

When writing the advertisers kindly mention the N. D. F.

Reboring and Grinding of Cylinders

This is the time to fit up your steam engines and gas tractors for the coming season

We can rebores and grind your cylinders, fit new oversize pistons and rings, make and fit new crank pins, straighten shafts, bore and bush gears and clutches or do any kind of machine work. Refue boilers and replace stay bolts. We carry in stock all sizes of stay bolts, patch bolts, bracket bolts, rivets, boiler flues, stay-bolt taps and boiler taps, shafting, shaft hangers, cast iron pulleys, woodsplit pulleys. Write and let us quote prices on any work you have.

Craig Brothers, Fargo, N. D.

P. O. Box 295. - - - - - Telephone 554 W.

Experiment Station Notes

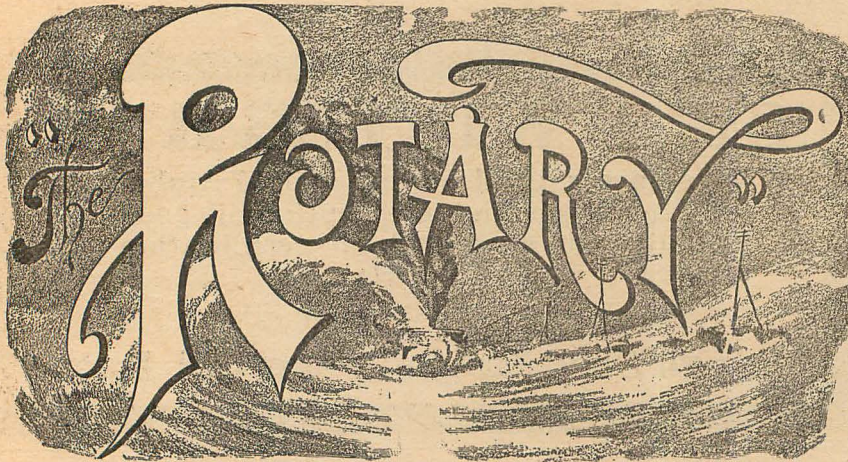
Timely and Helpful Suggestions

TO PREVENT HOG CHOLERA

When hog cholera breaks out in the neighborhood the following preventive measures can be taken. Keep the hogs indoors, or in isolated enclosures, allow no one but the feeder to come near them and disinfect their quarters. If swill is fed it must be boiled or steamed first. The hogs can be given immunity for four weeks against hog cholera by injecting protective hog cholera serum. If the disease is in the herd at the time of treating, or should appear during the period of im-

munity, the period of immunity will be considerably lengthened, in some cases for life. When hog cholera gets into the herd the best thing to do is to inject the hogs at once with serum. The N. D. State Serum Institute, Agricultural College, N. D., is supplying tested serum at a cost of sixty (60) cents per 100 c. c. in bottles containing 120, 240 and 500 c. c. This serum can be ordered by telegraph and will be sent C. O. D. by express or parcel post. No serum can be returned. The dose for a 100-pound pig is forty (40) c. c. and more or less as the hog is larger or smaller.

UNCLE WILL'S MAGAZINE



As the Rotary Plow Clears the Track for Traffic
So the Rotary Magazine Opens up the Avenues of Learning.

Hundreds Were Disappointed Last Year

Simply because the teachers or school boards failed to order The Rotary in time. Order now if you would be sure of the September number of which 8,800 were printed.

THE TWENTY-FIRST YEAR BEGAN WITH SEPTEMBER NUMBER

Prices	
Single Subscriptions.....	\$.50
In Clubs of 3 or more.....	.40
In Clubs of 20 to one address.....	.35

School Boards may order 20 or more at 35 cents, and have them sent to the schools under their charge.

There is no greater incentive to the study of language and reading than Uncle Will's Magazine.

ADDRESS

THE ROTARY, BOX F, LISBON, NORTH DAKOTA

STORING VEGETABLES

The best conditions for winter storage differs somewhat for the different vegetables. Beets, carrots and parsnips dry out readily. Packing in moist sand and keeping at a temperature just above freezing is an ideal condition. Onions keep best spread out in thin layers in boxes in a dry but cool atmosphere. These vegetables will keep better if dried in the sun before storing. Select only those free from cuts and bruises. Squashes and pumpkins keep best where it is dry and the thermometer about 50. Cabbages keep best in a temperature just above freezing, but at the same time moist.

It is important that good ventilation be provided where the vegetables are stored. The cellar is the most common storage place. If it contains a furnace it will be too warm for most vegetables, unless a room is partitioned off so that the heat can be kept out of it.

ALFALFA AND CLOVER HAY REDUCE GRAIN REQUIREMENT

Alfalfa and clover hay have a higher feeding value than the hay made from timothy, brome grass, prairie grass, etc. In other words, when cattle or horses are fed alfalfa or clover hay they will need less grain. This is especially important this year when grain is so high. A dairy cow needs to be well fed to produce well. The grain feed can be considerably reduced when good alfalfa hay is fed. In experiments at the Vermont and the Pennsylvania Experiment Station it was found that when alfalfa hay was fed in place of bran the milk flow was decreased less than 10 per cent, showing that the alfalfa was nearly as good as the bran. In buying hay one can afford to pay more for good alfalfa hay than for hay from timothy or other grasses. If it can be bought for the same price it will be a bargain. Sometimes it can be bought for less.

CURING SEED CORN

Curing seed corn consists largely in drying it fast enough so that it cannot mold or sour. To do this the corn should be hung up on strings, corn

Driver Agents Wanted

Drive and demonstrate the Bush Car. Pay for it out of your commissions on sales. My agents are making money. Shipments are prompt. Five-Pass., 34.7 H.P., 32x3 1/2 tires. Bush Cars guaranteed or money back, 1913 models ready. Write at once for my 48-page catalog and all particulars. Address J. H. Bush, Pres., Dept. 9DG, Chicago, Illinois.



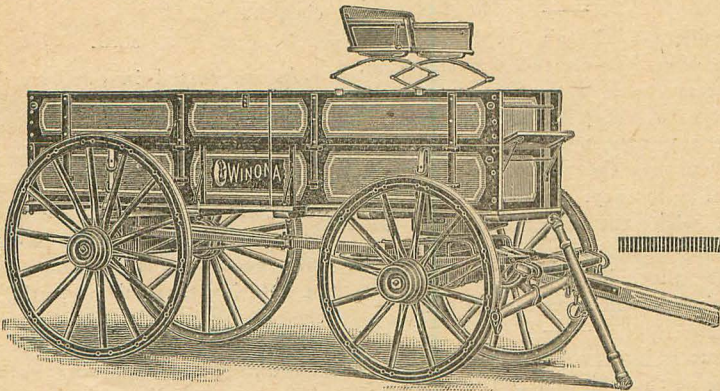
115-in Wheelbase
Delco Ignition-Elect. Stg. & Ltg.
BUSH MOTOR COMPANY, Bush Temple, Chicago, Illinois

trees or some contrivance so as to keep the ears separated and off the floor, and then placed in a room thru which the air can circulate freely so as to carry off the moisture. If the corn freezes while it has too much moisture the germ is killed.

CONTAGIOUS ABORTION

Contagious abortion does much damage in some herds. It has been found that infected cows do not continue to abort. When it first breaks out in the herd a considerable number

usually throw their calves. During the second year the abortions will be less and the third year the cases will be few. In this way the disease disappears automatically provided that no new susceptible animals are added to the herd. Disposing of the cows that have aborted and buying new ones usually results in prolonging the disease in the herd. The contagious abortion germs are often spread by the bull, so great care need be exercised in purchasing a sire to make sure that he is free from the contagion and also not to allow him to serve cows that are affected.



Strongest and Lightest Running

THE Winona is the strongest, lightest-draft farm wagon you can buy. Axles won't break—rims won't split—hubs won't check—boxes will stand the siege of steady use. If you want a fine-looking wagon that will give you uncommon length of service, see the Winona.

WINONA FARM WAGON

BUILT from tough, solid, "bone dry," seasoned timber—ironed with extraordinary care. Outer Bearing Axles, full Clipped Gear, Riveted Bent Felloes. Strongest Skeins, Poles and Hounds. Boxes extra cleated and braced. Comfortable Seats. Durably painted with best quality paints.

Write for Catalog F showing many exclusive features of the Winona.

WINONA WAGON COMPANY, Winona, Minn.

CLOTHES MOTHS

This is the time that clothes moths are at work. If woolen clothes or furs are hanging unprotected, take them out and give them a good brushing and beating every two to four weeks, hanging them in the sunshine is also good. Carpets that are in use are seldom attacked unless it be in corners not much disturbed by walking or sweeping.

LEGUMES GIVE ALMOST AS MUCH AS THEY TAKE

Alfalfa, clover, beans, peas and the rest of this family produce the most nutritious food and at the same time add more nitrogen to the soil than they remove.

Legumes come nearer to giving something for nothing than any other plants. Yet there is nothing mysterious about these plants. They have formed a partnership with some bacteria that live on their roots. These bacteria in return for being given a home (nodules) on the plant roots and for food from the plant take nitrogen from the air and leave it in the soil for the plant's use.

There are millions of dollars worth of this nitrogen over each acre; so the bacteria have an almost endless supply to draw on.

The way to tap this great wealth is to grow these plants that have these wonderful bacteria on their roots. These plants do not do well without the bacteria. When alfalfa, clover, peas, beans, or any of the other of these legume plants are sown on a piece of land for the first time it is usually necessary to sow the bacteria as well as the plant seed.

In these days when plant food is so important the greatest possible use should be made of the legumes, the greatest food producers for man and beast.

ENCOURAGE AND MAKE USE OF THE SPIRIT OF PLAY

Playground Games, 10 cts. Rules for playing the more common games of the school ground. Game of Times, 15 cents. A help in teaching and learning the tables and simple factoring. Davies Number Cards, 25 cents. All possible combinations. For all grades. In boxes. Westland Phonic Cards, 25 cents. Busy work for primary grades. An aid to sight reading. Fundamentals in Arithmetic Teaching, 25 cents. Invaluable for rapid work in numbers. Uncle Will's Magazine, The Rotary, 50 cents. Unique. Has personal element. 21st year. North Dakota Speller, 50th M. For 5th-8th, and 7th-8th Grades, 15 cts each. Trial, both 25 cts. The Rotary, Box F, Lisbon, North Dakota

JUST PUBLISHED

How To Run An Automobile

By Victor W. Page, M. S. A. E.

Price \$1.00

178 Pages

72 specially made Engravings



This treatise gives concise instructions for starting and running all makes of gasoline automobiles, how to care for them, and gives distinctive features of control. Shows the control groups of all popular makes of automobiles and describes every step for shifting gears, controlling engine, etc.

It is impossible to get the greatest efficiency out of a car until you know every point in running, caring for and adjusting the machine. In this new book just the problems you are up against are solved in a way that you can easily understand, and so that you can immediately turn to your car and apply the knowledge.

A book every one has been looking for. Fills a real need among motorists, dealers, chauffeurs, repairmen and all who must handle different makes of cars.

ADDRESS: NORTH DAKOTA FARMER, : : LISBON, N. D.

North Dakota Farmer

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Vol. 19 September, 1917. No. 3

Hint to Hoover: Straighten the
"slack" line between producer and
consumer.

Did you save your vegetable seed,
or have you forgotten your almost
vain search for the seeds in the five-
cent package you bought this spring?

The farmers who have fields of al-
falfa are not the ones who are selling
off their unfitted stock. Again we beg
of you to start a field, no matter how
small.

Was our advice sound last month
about searching the suspicious? The
murder at Moorhead and the many
holdups reported from over the state
certainly justify our position.

When a great institution turns its
tulip bed into a little experimental
plot for raising corn from seed ob-
tained from the Mandan Indians of
North Dakota, it is certainly compli-
mentary to those pioneers of corn-
raising in this state. Look again at
the cover page.

The Government urges the seeding
of an additional acreage of rye. Some
of the advantages are: it matures be-
fore rust; will stand more acid in the
soil, uses less nitrogen, has a higher
straw value, is hardier, and is less
subject to injury by insects, than is
wheat.

On and after November 1 all con-
tainers for fruits and vegetables will
be of standard size thruout the United
States. If you are interested send to
the Bureau of Markets, Washington,
D. C., for particulars. Hereafter the
bottom of the berry box will not be
filled instead of the top.

The grain standards set by the
government are proving almost ca-
lamitous this year, when the grain is

so infested with weed seeds, barley,
etc. However, in the end it will
work to the advantage of the farmer
of this section. We can furnish the
No. 1 and 2 wheat, and we can also
clean our fields of weeds. Let us be-
gin at once on the weed extermin-
ation. Out with the robbers!

President Wilson's reply to the
peace offer has cleared the situation.
A treaty with Kaiserism would be
"merely a scrap of paper," hence
Kaiserism can not be trusted and
must go that the world may be made
free of autocracy. Those who at first
sided with the central powers are
gradually but certainly coming to
realize that if we do not down
kaiserism it will surely down us.

There is just as much sense in turn-
ing loose the children in the neighbor-
hood when an epidemic occurs as it
would be to turn out the livestock
when they are found to be infected,
provided, the teacher and health officer
are on their jobs. The poor children
are at the mercy of those who would
make grandstand plays by advocating
additional holidays and suspension of
school on every conceivable pretext.

Reports have been circulated that
the government is urging the people
to can as many fruits and vegetables
as possible, so that they will be in
good shape for the government to
take to ship away to England. In
fact, some have declined to can on
this account. The report is absolutely
false and such a course by the govern-
ment is unthinkable. Save the sur-
plus for the home. The government
wants you to have it.

Year in and year out the North
Dakota Farmer has advocated live-
stock raising, and nothing has pleased
us more than the success of that in-
dustry of late; but the trainloads of
cattle and horses leaving the farms,
because of the shortage of feed, is one
of the most disheartening sights we
have ever witnessed. Those who have
been obliged to part with stock that
they have been years in accumulat-
ing have our heartfelt sympathy. We
strongly urge all who can possibly
hold on to do so, even if they have to
make sacrifices in other directions.

If you go beneath the plumage of
the pacifist dove of peace you will dis-
cover the imperial eagle of the Kaiser.
So it is with the patriotic assurances
of those who both in congress and
upon the platform denounce the acts
of the government or offer resolutions
that abound in expressions of loyalty
while the authors are sowing seeds of

sedition that will, if they are allowed
to continue, bring on a condition very
like that of Russia today. Farmers
of North Dakota, we plead with you
not to countenance the acts and
writings of those who have brought on
a condition, heretofore unknown in
this state, of malice, distrust, and
class hatred.

As we stated in our last issue, we
had perfect faith in the "Fair Price
Committee." Their fixing the price
of wheat at \$2.20 surely justified our
assertion. To be sure, as soon as that
price was announced, a great cry went
up that the committee was unduly
influenced and that a meeting would
be held in St. Paul protesting against
the Government's "collusion with the
millers and grain combine" and de-
manding \$3.00 or more a bushel. The
claim was published that North Da-
kota farmers paid \$3.54 on the aver-
age to raise a bushel of wheat." Do
you realize that with the present
government estimate of 61 millions,
that claimed cost would mean just
\$300 for every man, woman and child
in the state? The question arises,
"Where did the farmers get all that
215 million dollars to invest in seed
wheat alone?" When the laboring
man began to question how he was
going to live with wheat over \$3 a
bushel, there was quite a change in
the program. Instead of meeting to
protest against the low price fixed "a
friendly conference with the laboring
men to adjust prices of all com-
modities" was the new plan. Before
this issue reaches you, the results of
that meeting will be known. Such
acts can only mean embarrassment to
the government and give a false im-
pression to the country of the pa-
triotism of this state.

READING AND AGRICULTURE

The North Dakota Farmer is used
as a reader and as a school text in
Agriculture. Why should not our
boys and girls read what they can use
in everyday life?

We make it a point to keep its
pages clean, so that it may be an
uplifting and welcome visitor in the
home and the school.

To school boards who furnish text-
books, the following liberal offer is
made:

We will furnish to your school 5
copies of the North Dakota Farmer
and 5 copies of the Rotary, Uncle
Will's Magazine, now used by thous-
ands of children in the public and pri-
vate schools, for only \$3.50. Address
North Dakota Farmer, Lisbon, N. D.

Livestock Department

FARM AND STOCK NOTES

N. J. Shepherd

Heavy pruning conduces to wood growth.

Paint all large wounds made in pruning.

The fast walker is the profitable horse on the farm.

Evenness of wool depends upon evenness of condition in the sheep.

The better the ground preparation, the better the plant growth.

Select the best ewe lambs to keep to grade up the flock.

Sheep thrive on most of the foods produced on the average farm.

The lazy sleeping sow is not the one to select for a breeder.

The easier the feed is digested the greater the gains made from it.

A check in the growth of a colt means something off its value when he becomes a horse.

While it is always advisable to feed pigs well, they may be easily stunted by overfeeding.

Generally pigs from large litters are more thrifty than those from small litters, and are better feeders.

Excess of fat in the diet does not materially increase fat in the milk under normal conditions.

The best quality a ram can possess is prepotency—the ability to fix his characteristics upon his offspring.

An old horse may not need much exercise but to a young and growing colt it is very essential.

A place in which dairy work of any-kind is done should be provided with an abundance of light and air.

For all-around farm work the horse that is low and compact is better than the one that is long-legged.

Pigs often lack vigor because the brood sows are kept too fat. A good thrifty condition is much better for the pigs than too much fat.

A flock of sheep that is poorly cared for shows wool of weak, uneven fiber. While the wool of a healthy, well fed flock is clean, strong and even.

Cut off at any time any suckers you may find growing at the foot of fruit trees or on the trunk or main limbs where branches should not grow.

The cow is merely the mill for the feed, the container for the substance of the feed, the transmitter of the crude substance into the perfect finished product—milk.

Pigs produce their meat upon considerably less feed than any other meat producing animal, and much of the feed could not be used to an advantage in any other way.

The best fowl for the table is the one having the largest amount of white meat. In such a fowl the breast bone will be found to be long and the meat on it full.

If the hay and grain produced are fed to livestock and the manure properly returned to the land, from two-thirds to nine-tenths of the plant food is returned to the soil in the manure.

Breeding stock should never be selected from a litter of a vicious old brood sow or from those that are always restless and chasing about, because a quiet disposition is no small factor for the production of cheap pork.

It is absolutely essential to be regular in all work if the best success is desired. With the dairy cow it is necessary to feed and milk as regularly as possible, otherwise there will be more or less a failure.

As a rule it is not advisable to make a sudden change from one class of farming to another but rather make a gradual change as it takes time to learn how to follow any special branch of farming to the best advantage.

Ewes that have suckled their lambs well during the summer are sure to be reduced in flesh at weaning time and every effort should be made to bring them to a strong vigorous condition before the mating season arrives.

To get strong, lusty pigs that will start on the road to market as soon as they are born one must have good strong, mature sows as mothers. Having these, they must be fed on bone- and flesh-forming foods during the whole period of gestation and be given plenty of opportunity for exercise. A thrifty, quick-growing pig should be ready for market at least by the time it is nine months old.

Soundness is an essential feature in the make-up of a driving or riding horse when placed upon the market. A small blemish will not only lower the value of a horse but will very often prevent the sale entirely. Those who are able to pay fancy prices for horses want them free from defects of any kind.



Purebred Registered HOLSTEIN CATTLE

The undeniable facts that the Holstein-Friesian Association of America is the largest and most prosperous dairy cattle association in America, that its membership is over 7,000 more than the combined memberships of the other dairy cattle associations, and that it increased its membership by 1,260 during the fiscal year ending April 30, 1916, are primarily a fitting testimonial to the superior merits of the purebred Holstein-Friesian cow, that yields more milk for a day, for a year, for a life-time and for profit than any other cow. There is big money in the big "Black and White" Holsteins.

Send for FREE Illustrated Descriptive Booklets
Holstein-Friesian Association of America
F. L. Houghton, Sec'y Box 267, Brattleboro, Vt.

ENVILLA STOCK FARM

Cogswell, N. D.

Will quote you special prices at any time on Angus Cattle, Feeding and Breeding Sheep, Shetland Ponies, Duroc Jersey Hogs, Wolf Hounds, Collies, Rat, Bird Dogs and other breeds, Angora Cats. All varieties of chickens, turkeys, geese, ducks, guineas, pheasants, rabbits, ferrets. Pets. Live Foxes, Skunks, Mink and Badgers.

Bixby's Red Polls

My herd bull, J. D. Merryweather, No. 24396, is the son of J. D. Millie, A. R. Grand Champion cow at Minnesota and Montana, in the 1915 show-ring and won the milk and butter contest with Guernseys, Jerseys and Brown Swiss competing with records of 600 pounds butterfat. J. D. Millie weighed 1280 pounds at thirty months old, and is full sister to the World's Champion two-year-old heifer. J. S. BIXBY, LISBON, N. DAK.

REGISTERED SHROPSHIRE AND HAMPSHIRE RAMS; also a limited number of ewes for sale; also Polled Durham Bulls, and Canadian Wild Geese. Our stock won many prizes at the North Dakota State Fairs the last three years. Price, reasonable. H. A. Strutz, Thompson, North Dakota.

A. R. BRED BULLS PRICED TO SELL
We are completely sold out of RED POLL bulls for the present but are offering a few choice GUERNSEY bulls, outstanding individuals of serviceable age, at from \$100 up. Write for folder describing the remarkable show ring winnings and production records back of our herd. Jean Du Luth Farm, Duluth, Minn.

Holstein Calves

10 heifers, and 2 bulls, 15-16ths pure, 5 weeks old, nicely marked and from heavy milkers \$20.00 each, crated for shipment anywhere. Edgewood Farms, Whitewater, Wis.

REGISTERED Polled Durham Bulls. One is two years. Others 5-6 months old, and Oxford, Schropshire, and Rambouillet Rams. (All Registered) Some of these Rams were first and Champion at Grand Forks and Fargo Fairs this year. The Pleasant Grove Farm, Reynolds, North Dakota, R. E. Strutz, Proprietor.

PERCHERONS

If you want a real good young stallion or mare you should come to my barn. You can buy at a lower price at the barn than anywhere else. All home raised and used to Dakota conditions. A square deal guaranteed. Wm. Steinbach, New Rockford, N. D.

Now is the TIME and this is the PLACE to buy

Shetland Ponies FOR THE CHILDREN

Write your wants to
DR. J. A. H. WINSLOE, COOPERSTOWN, N. D.

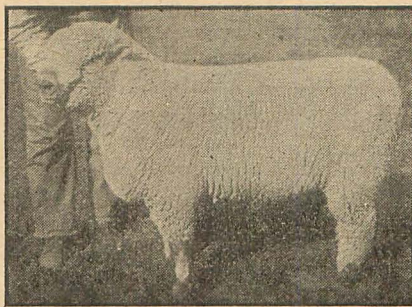
STARTING WITH EWE LAMBS

Good breeding ewes are selling high. Lower prices are unlikely, as the demand is strong and the available supply is small. With probable high prices for mutton and wool in the future the farmer who understands sheep and will properly care for them from the start has good prospects of success.

For those inexperienced in sheep raising, particularly, there are several important advantages in purchasing ewe lambs instead of mature breeding ewes, according to the United States Department of Agriculture. In the first place, the ewes of breeding age that are offered for sale are mostly western ewes with a long wool cross while the ewe lambs coming from the West are mostly black-faced lambs, thus showing a cross of some of the down breeds which is the kind of blood most farmers wish to have in their flocks. By buying such ewe

lambs one gets the advantage of starting with the first cross of the type to be used in grading up of a flock to the mutton type.

While breeding stock is selling high, the ewe lambs can be bought at about \$5.00 per head less than breeding ewes. This is an important point in starting a flock, altho until the lambs come to a breeding age no returns from the flock will be forthcoming except the wool clip. However, for the beginner in sheep husbandry, no better plan of obtaining experience could be adopted than in caring for a flock of ewe lambs for a year. The experience gained in wintering ewe lambs and managing the flock thruout the summer season would be invaluable.



First and Champion Shropshire Ram at Grand Forks and Fargo, 1917. Weight, 245 pounds. Said to be the finest Shropshire Ram that has ever come to North Dakota. Owned by R. E. Strutz, Reynolds, N. Dak.

Investment in a flock of ewe lambs will give the advantage of the first cross of blood of the down breeds, lower price, and necessary experience. The wool clip, which will at least offset the first year's keep and the yearling ewes will be a benefit to weedy pastures next spring if moved frequently and not stocked so heavily as to eat the grass into the ground.

COOPERATIVE CREAMERINS IN NORTH DAKOTA AND THE STEPS IN THEIR ORGANIZATION

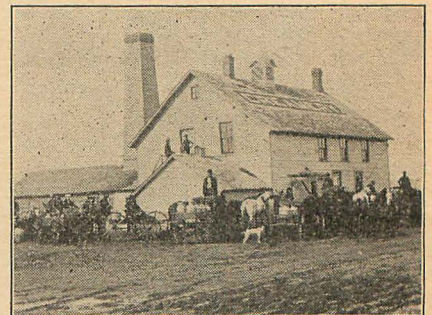
By M. E. Stebbins

That cooperative creameries can be made a success in North Dakota can be proved by an inspection of the districts where this method of organization is being tried out. For example, in Kidder County we find the dairy interests very successfully working into the general farming plan, and the farm conditions have been stimulated and improved by it. In Morton, Oliver, Ward, and Williams Counties which are among our new prairie districts the farmers thus organized are thriving and are contented.

The first step in the organization of a cooperative creamery in a community is to organize a cow testing association; for the only way to make profits in the dairy industry is to put it upon a sound business basis. This will necessitate the culling out of the unprofitable cows by means of the scales, tester, and record book, and then using modern scientific methods in feeding the rest upon feeds containing the proper milk-making nutrients. Cooperation is founded upon science.

A sufficient number of good cows is the first requisite, and of these there should be about 1000 to 1200 within a radius of six or seven miles. Another very important point to consider is the amount of capital, which should be \$5000 with at least \$3000 paid into the treasury.

In raising capital and getting under way, farmers need to be on their guard against creamery promoters, whose sole object is to sell the plant. A good way to start is to call a meeting of all the farmers interested, and to have present a disinterested dairyman. Such a man can usually be secured thru the State Dairy Depart-



Cooperate in a Creamery

ment, the Agricultural College or the Experiment Station. It will pay to proceed carefully, and if care is taken success is almost certain.

FATTEN EARLY PIGS NOW

The First Fall Markets Are the Highest

Pigs which were farrowed early and are about six months old at this time, may profitably be finished now. The early fall market has been the highest market for a number of years, because the number of well-finished hogs arriving at this season is limited.

Pigs may be fattened quickly and cheaply on nutritious pasture when supplemented by a full grain ration. After deducting the pork which would have been produced by the same amount of grain fed in dry lot, every

CLASSIFIED ADS.

One Cent a Word

Small advertisements will be classified under appropriate headings at the low price of one cent a word for each insertion. Cash must accompany all orders. Each initial or number must count as one word TRY IT HERE.

HOLSTEIN AND GUERNSEY HEIFER AND BULL CALVES. Choice selected promising dairy calves, practically pure Holstein and pure Guernsey, but not registered, nice color. \$20.00 each, all express paid to any point in North Dakota and adjoining states. Order two, you will be so well pleased you will want more.—Meadow Glen Yards, Whitewater, Wisconsin.

ROCKY HILL SHROPSHIRE

Home of Iroquois Covington, one of best sons of Butter's Best Get. Yearling rams and ewes for sale. Also aged rams and ewes. E. A. Paley, Hope, N. D.

COTTON SEED

Beautify your lawn with cotton blooms, will send package of cotton seed with full instruction how to grow it for only 10 cents (coin) W. Wadd Buntin, Seed & Plant Grower, Box 129, Dept. N., Stakville, Miss.

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

WANTED—Old false teeth, any condition. I pay \$2 to \$16 for full sets, parts in proportion. C. A. Wright, Hartford City, Ind.

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

MISSOURI AUCTION SCHOOL

FREE CATALOG KANSAS CITY, MO.

WANTED. Live Foxes, Skunks, Mink and Badgers, any time. Envilla Stock Farm, Cogswell, N. D.

Send for free list of Bargains and Exchanges in Farms, lands, businesses, any kind, anywhere. Western Sales Agency, Minneapolis, Minn.

Wanted to hear from owner of good farm for sale. State cash price, full description. D. F. Bush, Minneapolis, Minn.

If you have livestock to sell, you can reach a buyer thru the ad columns of the N. D. F.

acre of these pastures produces from three to six hundred pounds of pork. The full fattening power of the grain is realized as well as a profit on the pasture consumed.

Pastures to Use

In the corn belt and eastern States alfalfa, clover, and rape give best results. Pigs should be continued on these feeds until fat, usually for a period of six weeks at least. Alfalfa and clover may be pastured as long as

Methods of Feeding

If the pigs are hand-fed, it will pay to go slow the first week and gradually get them on full feed. After they are accustomed to the method of feeding, they may be pushed along as rapidly as possible without much danger from loss of appetite. Even on leguminous pasture some protein supplement such as tankage should be fed with the grain in the proportion of one part of tankage to ten or fif-

FARM MANURE

Farm manure is one of the products of the North Dakota farm that is often neglected. Manure when properly applied gives good returns. It has been found at the North Dakota Experiment Station that manure has given a return of \$1.40 per load and that was on the heavy Red River Valley soils. To secure this result it was applied to a corn crop which it increased as well as the wheat crops that followed it. Had it been applied directly to the wheat these good results would likely not have been secured. In fact, it might have brought in the first crop a decrease instead of the 75 percent increase.

At the Langdon Substation it was found that wheat following corn manured, 10 loads to the acre, was increased 7 bushels more than wheat on similar corn ground but not manured. And the next year barley grown on the same land was increased seven and one-half bushels and the good effects of the manure will extend to one or two more crops.

The drier the climate the slower the manure decays and so the good effects from it become available more slowly. When plowed under for corn the soil is well packed onto the manure which hastens its becoming available

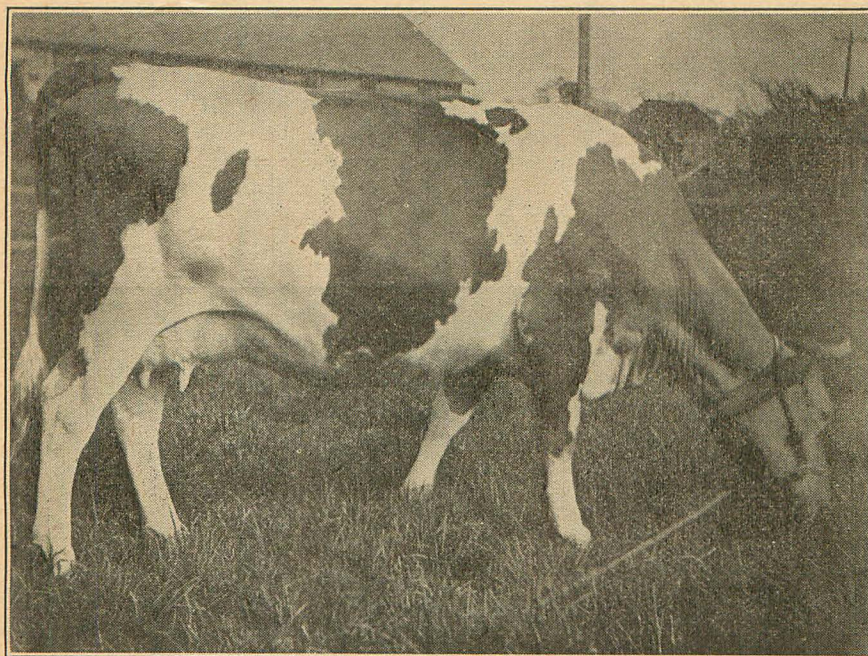
Pasture land that is to be plowed up soon is a good place to spread the manure. It stimulates the grass and the manure decays some so it is in good condition for being worked into the soil and for improving it when plowed under. The pasture also has the advantage that the manure can be spread on it at any time. Meadow that is to be plowed up is also a splendid place for applying the manure.

It has been found that better returns are secured from the manure when light applications are made. Six to eight loads per acre is a good amount to apply.

The application of manure is the cheapest means of returning organic or vegetable matter to the soil and the maintenance of a good supply of decaying organic matter is the first and most important step in the maintenance of the productive capacity of the soil. It gives the soil better tilth, increases the availability of the mineral elements of plant food and improves the water holding capacity of the soil, in addition to being a source of nitrogen as a plant food.

THE ADVANTAGES OF A PERMANENT PASTURE FOR HOGS

Pork can be produced at a profit, even with the present high prices of



TWO-YEAR-OLD GUERNSEY MAKES OVER 700 POUNDS OF BUTTERFAT

Follyland Nancy 52457, a two-year-old Guernsey heifer, bred and owned by I. C. Blandy of Greenwich, N. Y., recently completed an official year's record of 12270.9 pounds of milk and 712.60 pounds of butterfat, her average test being 5.81%. Three weeks after finishing her record she dropped a fine heifer calf, which is now growing well.

Her dam, Langwater Nancy 27943, has three official records and is now making her fourth. As a two-year-old she produced 630 pounds of butterfat; as a five-year-old, 735 pounds and when a six-year-old, 862 pounds of butterfat. During the first six months of this her fourth record, she has to her credit 556 pounds of butterfat,—three pounds more than the World's Champion, Murne Cowan 19597, produced during the same period.

Follyland Nancy ranks third in butterfat production among two-year-old Guernseys.

forage is required, and they will produce the largest gains due to pasture. An acre of alfalfa furnishes pasture for fourteen to sixteen 150-pound hogs during this short fattening season, while clover will carry from three to four hogs less per acre. Rape is an excellent forage and altho it does not produce as much pork per acre as the two legumes previously mentioned, it returns very good profits for the trouble and expense of planting the crop. It affords pasture for a period of four to six weeks for ten to twelve 150-pound hogs per acre.

teen parts of grain. A daily ration equal to 4 per cent or 4.5 per cent of the live weight is the maximum amount of grain that a pig will consume.

The self-feeding method is a very efficient system of feeding during this period, and produces results equal to, or better than, those obtained by hand-feeding. Grain is consumed more rapidly and economically, causing the pig to attain a marketable weight in a shorter time and with a smaller amount of grain.

grain, by using forage crops to a large extent. Permanent pastures also play an important part in a forage-crop succession.

Temporary pastures such as the cereals are best utilized in the early spring, and forage crops such as corn, soy beans, cowpeas, and velvet beans furnish fall grazing, but late in the spring and in the summer there is a season during which few temporary crops are available, with the exception of rape. At this time permanent pastures such as alfalfa, the clovers, blue grass, Bermuda, and a number of others, have their greatest use. They do not furnish grazing as early in the spring as do the cereals previously mentioned, but they grow better during late spring and summer and afford an abundance of forage at a season when few other pasture crops are ready to graze.

Permanent pastures require a minimum of attention and care. They make the cheapest pastures to maintain as it is not necessary to plow and replant each year. If not too heavily grazed they may be carried over from one season to the next and increase in value each year. They furnish almost a balanced ration, and only a little supplement need be fed to obtain a normal growth of the pigs.

One of the chief advantages of a permanent pasture is its long growing season. Growth continues from spring until fall, and the forage is palatable and nutritious at almost any time. Either a few hogs may be grazed during the whole season, or, after the pasture has made considerable growth, a large number may be pastured for a short time with practically equal results in the amount of pork produced per acre; showing that a permanent pasture is adapted to a variety of conditions in the forage-crop plan.

A permanent pasture then takes the place of a reserve forage crop, being called upon to furnish grazing at any time of the year when other pastures fail or are exhausted. The first thing to be done when one contemplates engaging in stock raising is to establish a permanent pasture. It fits into the forage-crop succession at any point where most needed, and is the cheapest pasture to maintain.

A CHANGE IN JERSEY REGISTRATION FEES

The American Jersey Cattle Club

The amendments to the By-Laws submitted on May 15 to the members of the American Jersey Cattle Club for a vote have resulted in the adoption of a new schedule of fees covering

the registration of domestic-bred Jerseys. The new fees will go into effect on September 17, 1917, and will be as follows:

Females one year old or under—	
To members.....	\$ 1.00 each
To non-members.....	2.00 each
Females over one year old and not more than two—	
To members.....	\$ 2.00 each
To non-members.....	3.00 each
Females over two years old—	
To members or non-m.....	\$10.00 each
Males one year old or under—	
To members.....	\$ 2.00 each
To non-members.....	3.00 each
Males over one year old and not more than two—	
To members.....	\$ 3.00 each
To non-members.....	5.00 each
Males over two years old—	
To members or non-m.....	\$10.00 each

240 feet high and is second in amount of water stored, in the world, its capacity being next only to that of the recently completed Elephant Butte Dam in New Mexico.

Delegates representing more than four million farmers have been appointed to take part in the Congress. Practically every state, and national agricultural organization has designated official representatives to participate in the deliberations, as have also the governors of thirty states, and a large number of county boards and commercial organizations.

THE FARMER BOY TRACTOR

One of the main features of the Farmer Boy Tractor is the ease with which it is controlled.



Seven Jersey Boosters from Indiana

ROOSEVELT DAM AT PEORIA

A complete working model of the great Roosevelt Dam in Arizona will form a part of the Arizona state display at the Twelfth International Soil-Products Exposition, which is to be held at Peoria, Ill., September 18-29, in conjunction with the Peoria Fair.

This is the model which was shown at the Panama-Pacific Exposition at San Francisco in 1915, where it attracted considerable attention. Arrangements have been made for the proper installation of the model and it will be shown in operation, with water flowing over the flood-gates.

The Roosevelt Dam is situated about 70 miles above Phoenix on the Salt River. It stores water for the irrigation of about 240,000 acres in the Salt River valley. The Dam is

At the big tractor demonstration recently at Fremont, Nebraska, Mr. Carpenter was demonstrating this machine. He would start it down the furrow behind the tractor just ahead and then let "The Farmer Boy" take care of itself, while he walked away and distributed circulars to interested spectators. The machine would continue alone on its course doing its work with a perfection almost human.

Because of the increased demand for the Farmer Boy, the McIntyre Mfg. Co., of Columbus, Ohio, who make this machine, have erected a new factory and increased their output.

Pullet eggs are not the best for an incubator. They will hatch, but the chickens are not so vigorous as those from yearlings.



Poultry Department



POULTRY AND INCUBATORS

By H. H. Johnson

There is considerable fiction in some of the papers about poultry, poultry raising and the profits. Having been in the business many years, I do not feel that anyone is justified in putting out an article that says a poultry raiser will make a fortune, but I think we should get it down to a business basis, and tell people that they can make profit. The capital required is very little, the experience and training none at all.

They can stay by the standard varieties such as the Plymouth Rocks, the Wyandottes, the Leghorns, Rhode Island Reds and the Buff Orpingtons. No one can get in wrong on these varieties. The farmer is the great poultry raiser of this country.

It is natural for the big poultry ventures to get notoriety thru the papers, no matter if they don't live until the story of their big boom is published. It has a thrill to it. These things are, however, damaging. The safe, sane and sensible method of raising poultry and figuring profits, is after all, the best.

Already there are appearing in some of the farm papers statements urging people to make use of their second-hand machines, to buy repairs and that sort of thing. But do you think it good advice considering eggs at 60 cents to 70 cents a dozen which they will be as soon as winter sets in? Good eggs at this price being entrusted to an incubator that has been a down-and-out machine simply because a few repairs have been put on it. Wouldn't it be policy to buy an incubator, up-to-date and one that the manufacturer guarantees? Success means more to people in raising poultry right now than ever before. Again, is it policy to advertise that metal and iron will be hard to get and therefore, people should make use of second-hand incubators, even if they are damaged? I realize that there is a point here in favor of the fellow that urges farmers to take care of their machinery. That's all well and good. Farmers are all very careless about their machinery and could get along with a whole lot less.

In one of the farm journals of national circulation is an article telling about the success of a party who borrowed all the incubators in the neighborhood and kept them hatching late

in the summer. That was a good idea but further on it mentioned that the lady had added to these machines which it said held 3000 eggs, a machine of 2500 eggs. The lady kept her own hens, 600 of them and she bought all the eggs for hatching in the surrounding country. Now a flock of 600 hens ought to produce at times about 400 eggs a day. The argument falls down for it shows the hens are not laying what they ought to lay.

Another thing that is going to keep us busy is the high price of feed. Still when we think about it, the first three months of a chick's life do not mean a whole lot of feed. Little chicks, a lot of them, thrive on a couple of handfuls of feed a day. The first three months they don't require much feed, then they are in the warm weather season and when running about the yard can get a lot of their own feed. Early hatches grow to maturity without running the owner into much money for feed and in the fall the farmer can save himself a lot of money by culling out the surplus roosters and old fat hens and keeping only pullets that are thrifty. These always have a high percentage of good layers. The feed question is a question it seems to me that can be handled. It's an argument demonstrating poultry raising and in some localities it seems to be a habit to sell off poultry in order to save feed. The average farm of 160 acres can develop a poultry income of \$300 to \$500 a year, also the average farm can keep about 200 hens that live on the waste feed. Poultry in a sense is a by-product. The price of feed is likely to go somewhat lower.

Another thing that should be learned is that chicken feed is not necessarily the No. 2 Red Turkey wheat and other grain of high price. Chicken feed can be screenings, unmarketable stuff, the clean-up from around a threshing machine where there is a lot of dirt and chaff.

If they offset the grain prices with the income from eggs at a big price and poultry at a big price, the price of grain won't look so big, especially if they count that the grain isn't first-class and marketable grain.

HOW THE BEGINNER STARTS

Where one has a well-advertised reputation for breeding high-class

poultry, he certainly is on the profitable side. But that is a step that cannot be taken immediately. In this business, like any other, one must "creep before he can walk."

There are two classes of poultrymen—the fancier and the poulturer. The former receives the highest prices. But good fanciers, like poets, are born—not "made to order." By that we mean they must have in them the talent to breed up to the highest type. It is a good thing that all cannot become fanciers, for from what source could the supply of table eggs and poultry come? Surely the fanciers are not catering to that trade.

It would be more profitable for the beginner to first secure strictly pure-breds, and then aim to grow eggs and chickens for market from them. At the same time, in the spring of the year eggs for hatching could be advertised, and in the fall pullets and cockerels for breeding purposes. It would, however, be several years before any particular trade could be developed in this line, as buyers are generally more apt to purchase from man either known to them personally, or whose names have become familiar from repeated advertising.

There is considerable risk to run by following only one branch; it is ad-

BIG MISSOURI ROSE COMB RHODE ISLAND REDS. Three choice pens. Five eggs from each pen for \$1.50. Blue Ribbon Strain, heavy winter layers. J. C. Guyer, Mandan, North Dakota.

PURE BRED S. C. Buff Orpington Eggs for hatching thru May and June, \$1.25 per 15. Mrs. Lydia Skeels, Westby, Mont., Box 72.

EGGS for Hatching from our prize winning Rose Comb Brown Leghorns, Rose Comb Rhode Island Reds and Single Comb Black Minorcas. \$2.00 per 15. Peter H. Levey, Fountain, Minn.

EGGS. PURE BRED S. C. W. Leghorn. Golden, White, Partridge, and Silver-laced Wyandottes. Rose Comb Island Red. Guineas. Runner and Pekin Ducks. Setting \$1.25; 100, \$6.00. B. Turkey, nine \$2.50. All eggs prepaid.

JOSIE ZENG
Walnut Grove, : : : Minn.

White and Columbia Wyandottes, Light Brahmas, and S. C. White Leghorns Over 30 years a breeder. Stock and eggs for sale. **MICHAEL K. BOYER**, Box 27, Hammononton New Jersey.

Hatching Eggs from a good strain of Pure Bred S. C. Rhode Island Reds, 15 for \$1.50; also a few Cock Birds and Cockerels for sale. **E. N. Hedahl**, Mercer, N. D.

FOR SALE. Well Bred Up R. C. Reds. First prize winners; cockerels, \$1.25. Mrs. John Henderson, Box 228, Beulah, N. D.

PUREBRED BARRED PLYMOUTH ROCK eggs. One setting of 13, \$7.50—100 eggs, \$4.50 prepaid. Otto L. Albertson, Nunda, S. D.

White Langshan eggs, \$3.50 setting, F. Runner Ducks \$1.50 setting. Selma Shanander Dayton, Iowa.

FOR SALE. Silver-Laced Wyandottes. Eggs and baby chicks. Mrs. Thos. Brady, Lansford, N. D.

Quality White Rocks

Hatching Eggs and Stock in season. We have the Best. O. A. Barton, Valley City, N. D.

visible to make a specially of table eggs when the market price is high, turning the eggs into chickens when the price of eggs is on the decline.

It costs about one cent and a half to produce an egg, so that anything over that amount is a profit.

The business of supplying prime poultry and choice fresh eggs is not overdone. Poor stuff goes begging at any and all times. There is much to learn, especially for those just starting. It will take a year or two before a new plant can be placed upon a profitable basis, especially where the beginner has it all to learn. Begin small, grow gradually, increasing as knowledge and success warrant.

DOES THE FARM HEN PAY?

A farm hen which will earn \$3.47 above her feed cost is a valuable asset. M. P. Hollar of Ray county had 133 hens which average that amount for a year, according to figures supplied by him to the University of Missouri College of Agriculture. Mr. Hollar started his test April 1, 1916 and produced during the twelve succeeding months \$468.84 worth of eggs and \$235.60 worth of birds. His feed cost for the year was \$242.05 which left a net profit of \$462.39. His hens averaged 141 eggs during the year.

Some farmers contend that poultry is profitable only when it lives on waste material and that feeding will result in loss. The College of Agriculture has been cooperating with a few farmers in the state to determine what returns may be expected from a well managed flock on the average farm. Records on all the flocks have not been compiled but reports which have been received indicate that proper feeding methods will return a worth while profit.

Two other records are not so good as that made by Mr. Hollar but they show that the birds returned a good profit above the feed cost. Mrs. Nimrod Nance of Daviess county had 240 hens and produced \$295.02 worth of eggs and \$285.63 worth of birds. The feed cost for the year was \$246.08 which left a net profit of \$334.57. Her hens averaged 95 eggs each and she realized a profit of \$1.39 on each bird.

Mrs. H. R. Spaht also of Daviess county produced \$197.46 worth of eggs and \$258.66 worth of poultry from her flock of 160 hens. She spent \$217.59 for feed. This gave her a profit of \$238.53 over feed cost which gives an average profit of \$1.49 per hen. The hens averaged 88 eggs each.

School and Home

RALLY TO THE FLAG!

Women of America, to arms! Your country calls you to her side. Not bullets, not ballots, but that old Number 8 cook stove must win this fight.

Are you going to shoulder this responsibility? All America is watching you.

In homestead days, when a woman went to the spring she picked up the rifle to guard against prowling bear or Indian—so this continent was won. Pick up the old rifle—the world is to be won for freedom—and a big share of this job is yours.

First, you are wondering how all of a sudden you became so important to the country.

Well, here's the point.

War depends on wealth. Now there isn't any wealth except that which comes out of the woods, out of the sea, out of the mines and off the farms. So you see the fate of the world hangs on the farm, the farmer, and the farmer's wife—and not the least is the farmer's wife.

It is the woman of the house who plans what is to be eaten. If she plans well—plans to save the meat, save the wheat, and eat the perishable stuff—the country and the men at the front can be fed.

Is your boy "out there," or is he somewhere in America working for Uncle Sam? If that boy is to be well fed, you must fall in with the plans of the Food Administration. The President asked them to make these plans, and when you work with them, you are working for your country and your boy.

Now, this does not mean starving your own family. The family must be fed and fed well, for when it comes to eating, men folks and boys won't stand for any foolishness. If you ask them to eat less you are wasting your breath. Your job is to teach them to eat differently by putting the something different before them.

Here is the whole idea—save all you can of what can be shipped, eat all you can of what cannot be shipped. Remembering that it is wheat, meat, butter and sugar that are needed by the Allies, plan to feed your family patriotically. A hungry man can eat a pound of meat, half a pound of meat, or a quarter pound of meat, and be satisfied—it all depends on the trimmings he gets with that meat.

There lies the woman's job—in the kind of trimmings you are going to give him. All of you have heard somebody say, "Well goodness, Ma, what else can I eat? I got to have something." Your part will be to have that something ready—something that is filling and at the same time in line with patriotism. That means hard work and thinking ahead and saving ahead during the present fall months when the fields and the woods are full of foodstuff waiting for you, the women of America, to gather and store. Soldiers of the commissary, forward!

A BECOMING UNIFORM

Fall Fabrics and Fancies

Never has there been a time when the fashions have seemed so practical. The narrow skirts do away with any extravagant use of material, for the straight silhouette reigns supreme. Of course there is drapery, usually on the side, a little below the hip, but even this does not detract from the length of the line from shoulder to hem.

There is no excuse whatever for any woman to dress unbecomingly. One does not now hear the old complaint, "Oh, but the styles do not become me. What am I to do?" The styles do become us, each and every one, for there has never been a time when the individuality of women can be so clearly studied and expressed.

Just a Whisper or Two

There is one big house in New York that predicts we will all be wearing bustles by New Year's! They point out that the drapery is slowly but surely retreating toward the back, and that pockets are being placed further back than they have been. The Chinese and Japanese style (kimono sleeve) is also being advanced very strongly.

The Food Conservation Uniform

Have you signed the Food Conservation Pledge? If not, do learn about it at once, for it is one of the ways the patriotic woman can really help her country. There is a fascinating dress apron which you can wear after you have signed it. The illustration here shows you just how very practical (and becoming) it really is. This is the official uniform, and is being worn all over the country. The

**Food Conservation Dress Apron**

dress itself is made of blue chambray or plain blue gingham, with collar, cuffs and cap of white pique. It is extremely simple of construction, and is also very easy to get into. There is only one button necessary. The dress closes on either side, the right over the left, or the left over the right. The strap or belt is passed thru a bound buttonhole, around the figure, and is fastened on the opposite side. The big pockets are conveniently placed, and altogether it is a costume designed for the efficient woman.

The Vogue of Gingham Continued in Fall Fabrics

There never has been a material so popular as gingham! The history of the gingham craze, as it has been called, is very interesting. It was launched by American designers without the assent of Paris. Palm Beach first put its seal on it, and since then, women have eagerly demanded it. Paris took it up, and the gingham dress of 1917 was the smartest affair imaginable. Women who had long relegated it to the nursery and the house dress, wore it at the beach, the country club, and on the street in the big cities. Now that cool days are coming, the designers are reluctantly laying it on one side, to be taken out next spring, however. There are quaint silks and chiffon taffetas to

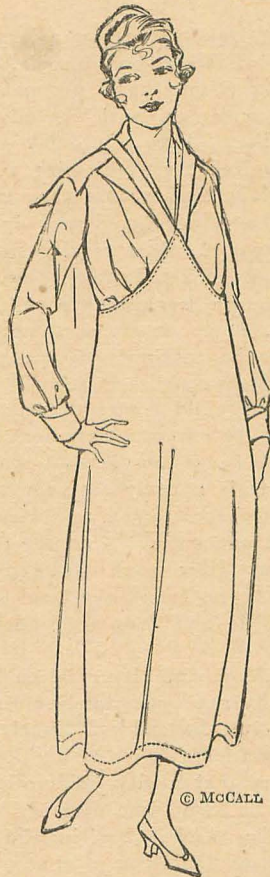
take its place, with the gingham pattern carefully carried out. I saw a most attractive dress on the avenue the other day, of blue-and-white-check taffeta, with large hip pockets and a surplice waist.

Lavish Use of Fur

Fur promises to be used this year as much or more than it was last. All the windows are full of fall suits and coats with bands, huge collars, and even pockets and belts of fur. One extravagant dress had the skirt as far up as the hip, the collar and cuffs, made of seal, with the rest of the costume oforgette crepe!

The French Apron

Isn't it astonishing the way the charm of the apron, aside from its

**The Fetching French Apron**

usefulness, has swept over the country? Of course, women are more interested in things that require an apron than they have been since our grandmother's day. There is something piquant about them, and they are playing a most important part in the wardrobe of the woman who keeps up with the times.

Here is an illustration of the new French apron. It is made on the lines of those aprons worn by the French Red Cross nurses, and is so simple an affair one wonders why we have not been wearing it for lo! these many

years. Completely covering the skirt, there is a bib, which is held up with suspenders or is buttoned thru to the dress beneath.

COMMUNITY CIVICS

Dr. James E. Boyle, U. S. Bureau of Markets, Fargo, N. D.

Greetings!

To you, new teacher, I extend my earnest greetings, my congratulations for your entering upon the high calling of teaching and may God speed that you may have joy in doing your work well.

To you, "old teacher" (?), I also extend hearty greetings, and my hope and expectation that you will make this year your best year thus far in teaching.

Personal Word

You will have "problems" arise in teaching Civics, on what to teach—how to teach—when to teach. Will you not write me a letter occasionally, asking me questions on these problems? I will try to serve you and will find pleasure in so doing. You may always address me at Fargo, North Dakota.

Community Civics

If you don't teach some Community Civics with your Civics, your work is a failure. If you teach nothing in Civics but an Outline (to be memorized) your work will be one hundred per cent failure. I saw just one case of that last year. If you use a good text book and supplement it with a sort of clipping bureau or scrapbook or filing-case of Civics material, worked up by yourself in co-operation with a class of enthusiastic pupils, your work will be a one hundred per cent success. I saw one case of that last year—and I will name it—Hunter, North Dakota, under Mrs. C. E. Peterson.

To teach Community Civics you merely have to emphasize the civic activities of your community, seeing that information of this kind is absorbed and duly related to the other phases of Civics—particularly State and National affairs. Here are a few of the topics under which you will file clippings on Community Civics: Good Roads; Education; Assessment and Local Taxation; Health and Sanitation; Local police protection; Rural credit; Mothers' Pension Law; Township Weed Law; Work of the County Agricultural Agent. These topics can be subdivided into many others.

Material on these topics, and on all other topics, must be collected as it appears in the local press or elsewhere,

must be preserved in some neat, accessible, and permanent form, and then be used when the day's recitation reaches the particular topic in question. This is the easiest, cheapest, and best way to handle the subject of Community Civics.

Washington Doings

As these lines are written I am in Washington doing some work with the Bureau of Markets. This Bureau employs many hundreds of persons, the whole aim being to help make the marketing of agricultural products more efficient and more serviceable to the people. These are stirring times at the Capital. Evidence of war is plainly to be seen. The streets are full of soldiers and sailors in their various uniforms.

Congress just now is working on the Revenue Bill, trying to decide how best to raise the billions of dollars needed to carry on a big successful war. American, French and British flags are seen everywhere. Mr. Hoover is busy with his job as Food Administrator.

The Export License Council is struggling to learn how much food can be spared for export to Germany's neutral neighbors without reaching Germany. Food Investigations are under way. The Federal Trade Commission and the Bureau of Markets are beginning an investigation of the Meat and Grain trades. So Washington is a busy place in spite of the hot August weather. But it is a beautiful city, which every teacher ought to plan to visit!

WIFEY AT THE HELM

When dear friend wife chauffeurs the car
It takes a little stroll,
And makes a frightful bluff as if
To climb a trolley pole.
It makes the poor pedestrians
Go scooting to the wall,
While in the forest glades the nymphs
Will hunt the timber tall.
"Now don't you think it clever, Frank,"
Dear wife will say to me,
"To make folks step right lively when
They're toddling home to tea?
We pay big taxes for the roads,
And they are ours, you know,
From Saginaw to Poseyville
And on to Kokomo.
Now watch me take a wheel right off
That wagon piled with coal;
It makes me boil to see road hogs,
It does, upon my soul."
And then she twists our new machine

Like the
across street,
this
And hardly gives the thing a thought

That everything may meet
In one grand smash, and spill the wheels
Until they roll like this

o—o
o—o
o—o
o—o
o—o
o—o
o—o

While on my cheek she tries to plant
A fresh, unmeasured kiss.
—From American Motorist.

TEACHING READING TO FOREIGNERS

Leontina Pecinovsky, Antelope
Consolidated School
Richland County

North Dakota contains a large percentage of foreign-born people. Most of these people have brought their native language with them. Even after they have become thoroly Americanized they still cling to their former language because they can express their thoughts better in their own language. As a result very little English is spoken in the home. The first language learned by a child from such a home is foreign and this language he continues to speak until he learns the English in school.

When a child comes to school the first day he enters a new life. He is surrounded by a different environment. It is no easy task for a child to become accustomed to this change when he understands what the teacher tells him. How much harder it is for the pupil who hasn't the least idea of what to do and does not understand if told!

We seldom find city children handicapped by not understanding English. In the city the children associate together and learn from one another. It is seldom that a city child of school age can be found who does not understand the teacher but in the rural districts we find them in almost every community in this state.

This article is written with the hope that it will help the teacher who has the privilege of teaching these little foreigners and helping them to become real Americans. By "foreigners" I mean children who are unable to speak the English language and in its place speak Norwegian, Russian, German, French, Bohemian or other languages.

Several years ago the writer happened to be one of those "little foreigners." Thinking over my school days I can see a little one-room rural school with two rows of double seats and a table in front which served as a teacher's desk. At this desk sat a

teacher whom I never remember of having seen smiling.

I was given a "Barnes's First Reader" the first day. The teacher opened it to a lesson for me and said something which I did not understand. Seeing the other children looking at their books I did the same until I became tired of looking at the picture. When class was called we took our books and marched up to the front and stood in front of the teacher's desk. Teacher called our names and as she did so we each took our turn and stood by her chair. She held the book and ran her finger along each line and read. The pupil standing by her repeated after her. Getting to the bottom of the page we took our seats and gazed at the book again or tormented our seat-mate until called up again to "read" as before. There was no board work.

This process was kept up until we were able to "read" the page right off. The result was that each one became a kind of a phonograph and when the right spring was pressed he gave in a sing-songy voice the selection asked for. Each one had no more idea of what he was saying than a phonograph has of what it is playing. If we had been given another book with identical words in different order we would have been "stuck."

I am sorry to say that the old way of teaching primary reading is passing as slowly as the little old-fashioned schoolhouses. The "parrot method" is still used by a great many to teach "little foreigners." It is small wonder that these children become poor readers. A child's oral reading depends greatly on his first three years of work.

Most of our teachers today come from training schools ready to teach Primary Reading by telling stories, dramatizing, and by sound, word and sentence methods. They depend on arousing the child's interest in Reading by telling him stories. But what good will a child get from a story told in the ordinary way when he doesn't understand what the teacher is saying? None whatever. When a teacher is faced by this truth she does one of two things. She either thinks that what she has learned at training school can not be applied to teaching foreigners and falls back to the old "parrot method," or she sees that the methods learned at training school are all right but that they must be used from a different angle for different pupils and finds from which angle her pupils will grasp the fundamentals of Reading. If she chooses the first she is storing up drudgery both for herself and her pupils but if she chooses the

second she has hard work and pleasure before both herself and the class.

The child without a knowledge of spoken English has two languages to learn in his first year of school, that is, the spoken and written English. Such being the case the teacher and the pupils have a double task before them.

Let us take the methods of storytelling, sound, word, and sentence and apply them to our little foreigners. Every child can understand a picture story even if he can not understand words. So our first lesson in Primary Reading will be to tell a story in pictures. Take the letter **c**, the hard sound, and write it large on the board. Give the sound of it to the pupils and have them repeat it. You can make the child understand by motions if in no other way what you want him to do. If the child is shy it will take a little coaxing and smiles to have him say it. Next tell the child that that is the sound which a cat made when she swallowed a piece of bone while eating fish. Now draw a picture of a cat with a plate before it and a whole fish. Have the pupils repeat the hard **c** while you point to it on the board. Next write the word **cat** under the picture and have them repeat that after you tell them the word. While telling the story of the cat who swallowed the bone talk slowly and distinctly and make the pictures as you talk. Of course the children will not understand at first what you are saying but in time they will connect the words and the pictures. At first the child will connect the picture of the cat and the sound of hard **c**, later the word **cat** will also be connected with the picture. Always tell the story orally in connection with the pictures but make it short and **very** simple. The pupils will understand in time if you keep it up long enough but not too long at one time.

The above will be enough for the first lesson. The next thing for the pupils to do is to copy the pictures from the board, also the letter **c**. To make them understand what you want done, give them a piece of paper and copy the picture from the board and help them to write **c** by guiding their hand. Now let them do it themselves. At first use unruled paper so that the children will not have to look for the lines. Also draw a cat and the letter **c** on a cardboard with colored crayon and have the children outline this with corn or split beans.

For the first few days the pictures drawn by the children will not be recognizable but do not let that make any difference. To the children they appear perfect. They will learn in

time to make them better if you will only wait. Take the papers as if they were the very best pictures by the most famous artist. I doubt if an artist is more proud of his picture than a little child is over the one which the teacher takes. Recognize the thought and effort he put into it and give him a genuine smile which every child can understand and will do almost anything in order to win.

The **second lesson** will be a repetition of the first and another story in addition. This story may be about the short sound of the letter **a**. Draw a picture of a baby on the board, also a cradle or a baby carriage. Next tell the children that that is a baby. Have them repeat the word. Now write it on the board also the letter **a** and have the children give the sound. This lesson may be followed up with busy work similar to the one after lesson one. If a change is wanted, draw the baby on a piece of cardboard and under the picture write the letter **a**. Have the older pupils prick these cards for you during their spare time. Give these cards to the pupils to sew out with colored thread.

The **third lesson** may be the sound **h** which the tired dog makes. Draw a picture of a dog running or lying down with his tongue hanging out. Write the letter **h** on the board and have the pupils repeat it. Next we may teach the words **dog** and **run**.

For the fourth lesson we may take the sound of **f** which the angry cat made as she spat at the dog when he chased her. Draw a picture of a cat on a fence post with her back curved and the dog down below looking up at the cat. Then write the letter **f** and have the pupils repeat the sound. Also write the words **cat** and **dog** which you have used in the preceding lesson. The next picture may be of the cat jumping from the post and the dog still looking on. With this picture teach the word **jump**. Have the pupils repeat it, also have them jump. The teacher may do a little jumping herself. Let the older pupils laugh, they will soon get used to seeing the teacher suit the action to the word. Enter into the spirit of the work; do not be stiff. Be a child with the children for the time being. The third picture may be of a cat running and the dog running after. Here bring in the words **dog**, **cat**, and **run**.

The fifth lesson may be a review of the first four. At this time the pupil may also be introduced to the words **I** and **see**.

The sixth lesson may be on short sentences. Use the verb **see** and a picture after it. Here we may use the pictures we used in the previous les-

sons and with which the pupils have become familiar.

For the seventh lesson use the same sentences as in lesson six and after going over them erase the picture and substitute the word.

For the other lessons teach other sounds until all are learned. Give only one new sound each day and often not even that if the pupils haven't grasped the one given before. Review the sounds which give the children the most trouble every day. Above all, do not hurry the pupils, but go slowly and surely, for in the end it will be time saved.

As soon as the pupils have mastered a few of the sounds have them sound words in which the sounds learned occur.

After a few words and sounds have been learned and the child recognizes them at sight and knows what they mean have the pupil read out of a book a few minutes each day. The book I have found to be the best for this is Coe's "First Days in School" published by American Book Co., Chicago. Some teachers prefer the "Beacon Primer" published by Ginn & Co. of Chicago. The objection I have to the "Beacon Primer" for the first book is that it has only the print and I prefer to teach the script form first. The "Beacon Primer" is excellent to give to the pupils as soon as they recognized the printed form.

Even after reading out of a book takes up the greater part of the recitation period have plenty of board work. In fact it is better to neglect the book and use the board than the other way. Also thruout the year connect as much of your busy work with your Primary Reading as possible. A large per cent of the busy work can be made to center around that most important subject for the primary grades—Reading.

In closing I have decided to write a few "dos" in place of "don'ts" as there are less of them and no doubt the reader who has read this far wants to get to the end.

1. Use objects to illustrate your words.
2. If objects are out of the question use pictures.
3. Make crude pictures if you can't make any other. A poor illustration is better than none.
4. Encourage the older children in teaching the little ones English.
5. Be pleasant.
6. Smile often.
7. Be sympathetic.
8. Be patient.
9. Enter heart and soul into your work.
10. Teach **phonics**.

List of books for the primary grades:

1. Coe's First Days in School—American Book Co., Chicago.
2. Beacon Primer—Ginn & Co. Chicago.
3. Story Hour Reader, 1st, by Coe and Christie—American Book Co., Chicago.
4. Free & Treadwell's First Reader—Row, Peterson & Co., Chicago.
5. Patt's The Three Little Pigs—Educational Publishing Co., Chicago.
6. Beacon First Reader—Ginn & Co., Chicago.
7. Beacon Second Reader—Ginn & Co., Chicago.
8. Beacon Third Reader—Ginn & Co., Chicago.
9. Cyr Readers, 1st, 2nd & 3rd—Ginn & Co., Chicago.
10. First Term Primer—W. G. Crocker, Lisbon, N. D.
11. Primer from Fableland—W. G. Crocker, Lisbon, N. D.
12. Jack and the Beanstalk—W. G. Crocker, Lisbon, N. D.
13. Mother Goose Reader—W. G. Crocker Lisbon, N. D.

I have found numbers 1, 2, 6, 7, 8, 9, 10 and 11 to be especially fine. The teacher also ought to have "The Key Method" price 25 cents published by Northwestern School Supply Co., Minneapolis, Minn. The teacher should also study the "Beacon Primer" and it is also an excellent thing to have the Beacon Chart but this is not essential as board work can be used in its place.

KEROSENE AND EXPLOSIONS

E. S. Keene. N. D. Agri. College

The simple statement,—kerosene is not explosive,—would cause most people to doubt its truth; yet in its usual condition it is not more explosive than ordinary coal. It does, however, ignite more readily than coal and burns with greater freedom. Any hydrocarbon will cause an explosion under certain conditions and both kerosene and coal are hydro-carbons.

Kerosene explosions have been the cause of many disastrous accidents, a considerable number of which might have been prevented by a reasonable exercise of care. The admonitions of the Safety First movement are based on a knowledge of the cause of accidents. An understanding of the principal causes of kerosene explosions will aid in reducing the number of preventable casualties and losses of property. The causes of kerosene explosions, in most cases, are not difficult to account for and usually they are preventable by the exercise of a reasonable amount of precaution.

Any combustible gas or vapor when

mixed with the right amount of air will explode with greater or lesser violence. Kerosene in its ordinary state must be turned into vapor before it burns; the combustion of which produces a dull smoky flame. If the vapor is mixed with the right amount of air to produce complete combustion and the flame is controlled, it burns with a bright flame without smoke. Uncontrolled kerosene vapor that is mixed with air may become violently explosive and if sufficient in quantity may produce most terrific consequences.

The danger in using kerosene for starting the fire in a stove is because of the possibility of making an explosive mixture of the vapor and air which is likely to produce disastrous results when ignited. In case there are hot coals in the ashes of a fire to be rekindled, the use of kerosene is particularly dangerous. The heat from the coals will cause a rapid vaporization of the kerosene which soon fills the stove and chimney flue with an explosive mixture. If any part of this mixture is ignited the whole mass explodes.

If hot kerosene is spilled on the floor of a room it immediately vaporizes and diffuses thru the air; in which state it may be and often is in condition to explode. If such a mixture is ignited in any way, the whole mass instantly takes fire with great violence. An explosion of this kind is the instantaneous burning of a mixture of kerosene vapor and air.

The construction of the kerosene lamp is such that the oil is heated at the tip of the wick to form the desired flame. As the vapor forms, it is mixed with air in the right quantity, such as to produce a bright flame when burned. The chimney acts as a flue to create the draft necessary to supply the burner with the required amount of air. The burner is so constructed that the oil in the bowl of the lamp is not heated enough to be at all dangerous. The burner is designed to admit the proper amount to produce complete combustion and the draft created is so directed as to give the desired shape of flame. No ordinary lamp in good condition will explode from internal pressure and thus scatter burning oil to cause a fire. There is a vent at the side of the wick-holder in the form of a flattened tube, which extends down into the bowl and is intended to prevent any increase of pressure on the oil. This tube should be kept free from obstruction as it is the safety valve in case the bowl should be accidentally overheated.

All the little holes in the perforated part of the burner should be kept free from dirt and dust or the flame will

not receive the proper amount of air. Insufficient air produces incomplete combustion and its result is a dull flame which allows unburned oil to escape into the air to give the disagreeable odor of partly burned kerosene.

MAKE YOUR OWN STICKY FLY PAPER

Every farmer can make his own sticky fly paper at a very low cost by boiling together 3 1-2 ounces each of boiled linseed oil and molasses, and 1 pound of rosin, and after a proper thickness has been attained, spreading it with a brush on heavy Manila paper. The paper should be in large sheets, and after spreading the mixture on one-half of the sheet, it may be folded over. This should be stored in a cool place.—H. S. Eakins, Colorado Agricultural College, Fort Collins, Colorado.

HOT LUNCHES FOR THE RURAL SCHOOL

Mary Vaughn in Iowa Agriculturist

How to teach domestic science which, by its nature, requires a laboratory and equipment in a little one room school building, is a larger problem than many rural school teachers can solve.

Clearly, the actual laboratory work by individual pupils cannot be done, because, first, were there a room in the woodshed or a small ante-room to the main school, the cost of individual equipment for the dozen or two girls would not be practical. Second, the teacher has her time full with her varied classes, without taking out of her day a long laboratory period. Furthermore, conveniences, such as quick stoves, refrigerators, store room from insects and mice are hard to obtain in the rural school.

The question of teaching domestic science, then, seemingly resolves itself into the teaching of theories and principles. For this reason, it is fortunate that domestic science is not alone a science of cooking and sewing, as too many people think. One of its important branches deals with the sanitation of homes and school houses; another with personal hygiene, or the proper care of individuals in order to be healthy. Various subjects under these heads may be discussed outside of a laboratory.

So far, however, the hot lunch seems to be the most satisfactory substitute for laboratory work. If equip-

ment may be had, a table, cupboard, alcohol or oil stove, cooking utensils and serving dishes for the children, are all that is necessary. A home-made fireless cooker can be used to great advantage.

In using the hot lunch method, the idea is to prepare one hot dish for the noon lunch for the pupils, which will supplement their cold lunch that they bring from home. The teacher introduces the principle of the balanced ration in suggesting what cold articles will make a meal with the soup or hot pudding for the day. A week's menu might be as follows:

Monday—Tomato soup, meat sandwich, crackers, plum butter.

Tuesday—Creamed egg, bread and butter sandwich, celery, apple pie and cheese.

Wednesday—Hot oatmeal, bread and butter sandwich, prune sauce or dates, salted nuts, cake.

Thursday—Scalloped potatoes, cheese sandwich, vegetable salad, sauce.

Friday—Custard pudding, meat sandwich, pickles, cookies.

The plan for the hot lunches must be worked out carefully by the teacher beforehand and the co-operation of the parents in the home earnestly solicited in order that the plan may be a success.

But some one asks, "How do you supply the material for the hot lunch?" In the first place, the hot dish must contain common products of the farm. Then by apportioning the food supplies for the week equally among the pupils, as one quart of flour from Johnny, one can of tomatoes from Susan, one quart of milk from Jane, etc., the various materials are supplied from the homes and no one feels the burden.

The daily plan of work is another phase which must be carefully systematized. Each girl in the class must have her turn at preparing the hot dish, serving it and washing dishes. For instance, a different girl is appointed for cook each day and her duties are as follows:

Monday (before school)—Opens tomatoes and measures out dry ingredients.

11:45—Prepares soup.

Tuesday (before school)—Boil eggs.

11:45—Prepares white sauce.

4:00—Prepares oatmeal and places in fireless cooker over night.

Wednesday (11:45)—Take oatmeal out of cooker and reheat.

Pare potatoes for next day.

Thursday (before school)—Prepare the scalloped potatoes.

10:30—Put scalloped potatoes in oven.

Friday (before school)—Measure ingredients for pudding.

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How schools may be consolidated?
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What to do when a pupil or parent disturbs the school?
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HE could not know, standing there in his bare feet and his rough clothes, with his little schooling, that kings would do him honor when he died, and that all men who read would mourn a friend. He could not dream that one day his work would stand in Chinese, in Russian, in many languages he could not read—and from humble doorman to proudest emperor, all would be gladdened at his coming.

He could not know that through it all he would remain as simple, as democratic, as he was that day as a boy on the Mississippi.

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He made us laugh, so that we had no time to see that his style was sublime, that he was biblical in simplicity, that he was to America another Lincoln in spirit. To us, he was just Mark Twain—well-beloved, one of ourselves, one to laugh with, one to go to for cheer, one to go to for sane, pointed views. Now he is gone, the trenchant pen is still. But his joyous spirit is still with us. Mark Twain's smile will live forever. His laughter is eternal.

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The Great American

He was American. He had the idealism of America—the humor, the kindness, the reaching toward a bigger thing, the simplicity. In his work we find all things, from the ridiculous in "Huckleberry Finn" to the sublime of "Joan of Arc"—serene and lovely beauty as lofty as Joan herself. A man who could write two such books as "Huckleberry Finn" and "Joan of Arc" was sublime in power. His youth and his laughter are eternal; his genius will never die.

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Frontispiece to A. B. Paine's
"Boys' Life of Mark Twain"

Seasonable Receipts

Mrs. Sadie Baird, Editor

GOOD TO EAT

An old-fashioned supper dish consists of griddlecakes the size of a breakfast plate, piled one on top of the other, making five layers, each covered with a mixture of sugar and cinnamon, or shaved maple sugar—after buttering of course. They were served in triangular shape, pie fashion. They are so good and so hearty one wants but little else for a first course.

A large fresh tongue is boiled gently until tender, then allowed to cool and the skin removed. An hour before serving, the tongue is put into a casserole with two large tomatoes, one onion cut fine, one bay leaf, six whole cloves, half a cup of vinegar, one cup of olive oil and seasoning salt and paprika. It is then covered with the liquor in which the tongue was boiled, now cool, and strained, and placed in the oven. To serve, the tongue is put

on a hot platter and the sauce strained over it. Fried potato cakes go with this.

Refreshments served at a recent informal card party were so dainty and delicious that I hasten to "pass them along." They consisted of a frozen dish called Catawba pudding, cocoanut balls and strips of candied ginger. To make the pudding fold a pint of chilled, whipped cream into one-half package of gelatine that has been soaked in a cup of cold water for half an hour, then melted over steam and allowed to cool but not stiffen. Now add one scant cup of pulverized sugar, a cup of unfermented grape juice, half a cup of boiled rice and a quarter of a cup each of chopped figs and dates; freeze until smooth and firm and serve in slender glasses. The cocoanut balls were made from small thick squares of angel cake trimmed in the desired shape and rolled first in fon-

dant frosting and then in shredded cocoanut.

Chicken Curry Sandwiches. Make a thick cream sauce with half a cup of cream instead of milk. Cook one tablespoon of butter with two of flour, add the cream and one teaspoon each of onion juice and minced parsley. When boiling thoroly add half a cup of minced chicken and one tablespoon of curry powder. Spread, when cold, between thin slices of buttered bread with perhaps a leaf of lettuce between.

NEW ENGLAND PLUM PUDDING

A pint and a half each of white bread crumbs and raisins, one cup of moist brown sugar, one-half cup of New Orleans molasses, one cup of suet chopped fine, or butter, a generous pint and a half of rich milk, five eggs beaten, a teaspoon of salt, a teaspoon of fresh grated nutmeg, a scant half teaspoon of ground cloves and one teaspoon of ground allspice. If preferred, one teaspoon of double extract of vanilla may be substituted for the cloves and allspice. The raisins should be well dusted with flour so they will not sink to the bottom and should be stirred in last of all. Bake very slowly from four to five hours in a deep pudding dish (earthenware preferred) generously buttered.

ROAST DUCK

Pick, singe, and remove the crop, entrails, oil bag, legs; and pinions. The legs and wings being very tough and mostly bone, are better removed before roasting, but they need not be wasted, as they may be boiled and used in a salmi made from the remnants of the roast duck. Wash and wipe carefully, and stuff with from two to three cups of stale bread crumbs according to the size of the ducks. Do not have them quite full. Moisten the crumbs with one tablespoon butter, and hot water enough to swell the bread. Season to taste with salt, pepper, and a very little prepared herb seasoning.

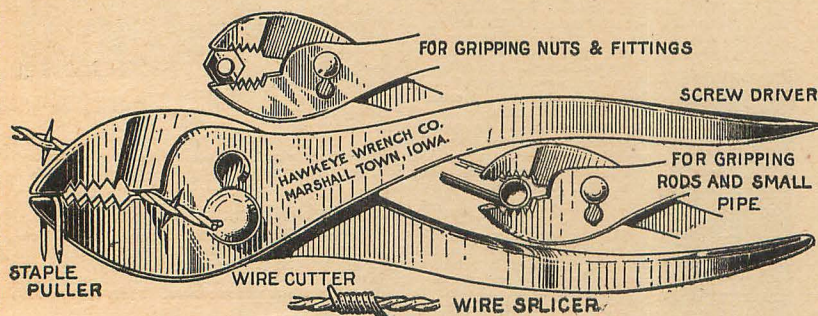
Truss and dredge with salt, pepper, and flour. Place on a rack in a pan and pour in from one to two cups of hot water, enough to keep the bottom of the pan well covered. Use the rack so the ducks may be kept out of the water. Cook in a moderately hot oven two hours, or three if the ducks are large. Baste every fifteen minutes with boiling water salted to the taste, Dredge with flour after each basting.

After they have cooked an hour remove the water from the pan and replace with fresh hot water, and again after the next hour if large ducks are

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being cooked. Turn them often enough to cook evenly. The last time the fowl is to be basted use melted butter and hot water, two tablespoonfuls of each, after which cook twenty minutes in a hot oven, turning frequently till evenly browned. Remove the grease from the water in the pan, thicken with flour, season if needed, and strain the gravy before serving.

PRUNES

Prunes can be cooked up so that they will be rich and deliciously flavored and not the flat, tasteless fruit we usually think of when prunes are mentioned.

After washing them let them stand in cold water over night. In cooking place them in the saucepan with plenty of cold water to cover. When they come to a boil, set the saucepan where it will keep on an even but steady slow boil. An hour and a half is none too long for prunes to cook. By that time the syrup is reduced to a thick consistency, which, when cold, will almost jelly. As soon as the prunes are put on the fire the lemon goes in with it. Allow one lemon to three quarters of a pound of prunes. Shave off the yellow rind as thin and small as possible into your sauce, then peel off the thick, white portion, discarding it. Slice the lemon and add it all to the prunes. When they have boiled about half an hour add the sugar. As you stir and watch them occasionally, taste and see if they have a lemony flavor. Sometimes the right amount of sugar has not been added to draw out that flavor. Allow about a cup of sugar. When done the syrup should just cover the prunes. By following the given recipe carefully it is as possible to have your stewed prunes rich and delicious as a more choice preserve. By pitting and mincing the prunes to a jam they make a rich pie filling. Have a meringue top or pie crust.

JELLIED PEACHES

Provide first a dozen good-sized peaches or more, half a box of gelatine, a cupful and a half of sugar, and a pint and a half of water. Soak the gelatine for two hours in half a pint of the water. At the end of that time put sugar and remaining water into a stew pan and let them boil five minutes. Pare the peaches, and cut them in sections, then cook them gently in the boiling syrup for ten minutes. On taking the stew pan from the fire, turn the soaked gelatine into it; then set it in another basin containing cold water, and stir oc-

asionally until the mixture becomes cool. Before the jelly has had time to congeal, dip a mould into cold water and turn the mixture into it. Set in a cold place three or four hours. At serving time dip the mould into warm water and turn the contents out on a flat dish. Serve with whipped cream or soft custard poured round the jelly.

GRAPE JUICE

Put the grapes into the preserving kettle, after looking over and washing them, and crush slightly with wooden spoon. Heat slowly, and simmer for half an hour. Strain thru cheesecloth over a colander. Get out every bit of juice. After measuring it, put it back on the fire. Let it boil up twice, skimming each time it reaches the boiling point. Then add a pint of sugar for every gallon of juice, and stir until dissolved. Boil five minutes, skim again, and fill into hot sterilized bottles. Set these in a water bath in the oven, and cook for ten minutes after the surrounding water boils. Fill up the jars with extra boiling juice and seal. Wild grapes need a little more sugar.

SUBSTITUTE FOR LARD

When baking griddle cakes, instead of greasing the griddle, rub it with a small bag of salt. The cakes are just as brown, and the kitchen is not filled with the odor of burning lard.

SAUER KRAUT

Remove the outer leaves and cores of cabbage and cut fine on a slaw-cutter. Put down in a keg or large jar. Put a very little sprinkle of salt between each layer, and pound each layer with a wooden masher or mallet. When your vessel is full, place some large cabbage leaves on top, and a double cloth wrung out of cold water. Then a cover with a very heavy weight on it—a large stone is best. Let it set for six weeks before using, being careful to remove the scum that rises every day, by washing out the cloth, the cover and the weight in cold water. After six weeks, pour off the liquid and fill over it with clear, cold water. This makes it very nice and white.

Pour boiling hot water enough to cover the quantity you wish to use. Let it boil for three hours, well covered. Some prefer a piece of salt or pickled pork cooked with it. Again, others boil it down and add enough butter to fry it.

COTTAGE CHEESE A MEAT SUBSTITUTE

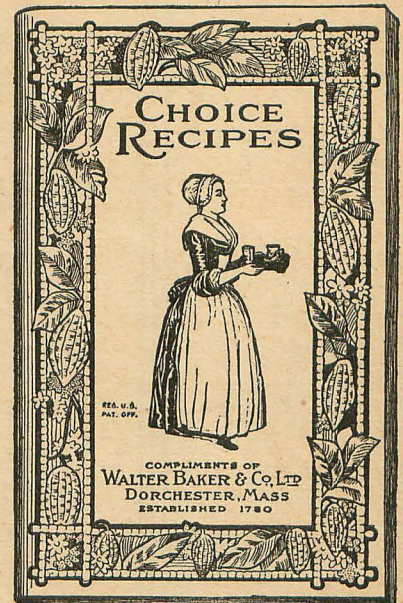
Cottage cheese is a very nutritious food. A pound of it contains more protein than a pound of meat. To make cottage cheese put sour milk in a pan and place in a pan of water 100 degrees F. or that feels slightly warm to the hand. Leave 20 minutes stirring occasionally then pour into a cheese cloth sack—hang up to drain 5 to 10 minutes. Work the curds till fine in grain—salt and flavor to taste.

A cloth wrung out of ice water and changed every ten minutes is the best treatment for most cases of inflammation in the head or eyes.

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